
From: Taylor, Andrew
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Subject: Taylor Interview Notes Part II
Attachments: FX-6 Personal Privacy [REDACTED]
FX-6 Personal Privacy [REDACTED]

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Kim,

Attached are 15 sets of interview notes. Final batch, Part III tomorrow. This and tomorrow's batch will require a little work on your behalf because of Privacy information (names and phone numbers) throughout the notes AND, you will have to extract the title and years worked at SSFL. (the title and years are mostly in the first paragraph or two of each but not all have that information and not all are former employees... eg. former contractor, spouse etc).

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVIEW NOTES

Review for Privacy Act Information before release

Project/Subject: SSFL / HSA

Date / Time: 12/01/09

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Interviewee(s): FX-6 Personal Privacy

Contact information: FX-6 Personal Privacy t

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

The following is a transcript of the audio taped interview:

FX-6 Personal INTERVIEW – TAPE 1 SIDE A

00:00 - Andrew: This is an interview with FX-6 Personal Privacy: Yes.> And is it okay to tape record this?
<FX-6: I guess you could.> Okay thanks. Strictly for note-taking purposes. Especially when you're found to talk about material, at my level. So you were an employee of Atomics International working at Canoga Park. What years were you working at Canoga Park?

00:34 - FX-6: At Canoga Park I was in the main facility there, which was Atomic International. It was an office across the street from Rocketdyne. Both facilities were owned by the North American Aviation (NAA). Rocketdyne was interested in making rockets for NASA and military. We were across the street and we were the atomics in the building. So they were also interested in nuclear energy and developing nuclear power plants. So they were funded by the AEC at the time, Atomic Energy Commission no longer there. The next generation was ERDA, Energy Research and Development Agency. That was there for so long. There was a gap. Then the next generation became the DOE, Department of Energy. Those are the three things that funded Atomics International and I guess Rocketdyne.

1:58 - Andrew: They were a client to Atomics International?

02:05 - FX-6: Basically that's true. AEC basically sponsored AI. They're a contractor to AEC at the time as well as Westinghouse and GE. There were a lot of different people trying to do nuclear energy at the time and build power plants and so forth. AI was an oddball in the area. The two chief competitors for atomic energy at the time were General Electric and Westinghouse. Westinghouse finally won the battle. The pressurized water reactors were developed into submarines and then they modeled the power reactors after the pressurized water concept.

03:07 - Andrew: So GE, Westinghouse... <FX-6: Were the big contractors for AEC.> Was AI competing with GE and Westinghouse?

03:21 - FX-6: AEC sponsored a number of them, but those were the big ones – GE, Westinghouse, and us, AI. We were supposed to do not pressured water, but different kinds of reactors concepts like Organic Moderated Reactor Experiment, OMRE. It was in P---, Ohio or someplace else. They were also funding AI to do the Sodium Reactor, SRE. That was a whole different concept of heat transfer. The OMRE reactor used organic moderated fluid like phenols... It wasn't being done at Canoga Park. The actual plant itself was in the Midwest in P---, Ohio. The other big push was the SRE. They were doing NAK – sodium potassium bonds for the

core. They had two coolant loops. They had a sodium loop and another sodium loop. The first sodium loop heat exchanged with water to drive the turbine. That was kind of the sequence. The whole reactor was different because it was a sodium reactor it was called a faster reactor. The spec of neutrons were a little higher than the moderated water reactors like GE and Westinghouse and OMRE. It was a concept that was different as well as some other things they tried. I'm not familiar with all of them because I was only there 2 years.

06:12 - Andrew: The OMRE didn't work, it wasn't going off?

06:18 - **FX-6** What happened to that, the organic moderated coolant itself was an organic material like phenol. It was an organic fluid, it wasn't water, such that it was also a moderator as well as a heat transfer intermediate. So it operated at a lower energy neutron spectra, kind of like water. Kind of like GE and the other reactors. AEC was trying everything. There funding people to do things. There was pressure on them to get atomic energy into thing out to the war out to the bombs. It was a big deal. Atoms for peace. Let's take that wonderful nuclear energy that we made bombs out of and make electricity. That's what happened as well as nice pressurized water systems for the submarines that Admiral --- developed. His work at Westinghouse preceded the pressurized water systems that we have today.

07:55 - Andrew: At Santa Susana or Canoga Park, were those facilities even though they were AI also being used by the competitors, Westinghouse or GE?

08:08 - **FX-6** : No, unless there was some contract I'm totally unaware of. My basic function there was in Health Physics and also Radiation Engineering. I was doing radiation shielding, radiation transport, and all that kind of stuff. Nuclear engineering kind of things.

08:32 - Andrew: Do you recall your job title?

08:36 - **FX-6** It think it was Research Engineer or Radiation engineer.

08:49 - Andrew: When you did health physics were you called a health physicist?

08:53 - **FX-6** : Yeah, but I think I was at Health Physics first and then I got into Radiation Engineering. Health Physics was more or less a service at the time. I had been fairly educated at Berkeley so I had a background in Nuclear Physics.

09:17 - Andrew: I hear the term Health Physicist a lot.

09:21 - **FX-6** It's a discipline. It's now a big deal. Health Physics is a huge thing. **FX-6**, he's a Health Physicist. They put out a journal. I've published many articles in it. Research articles.

09:48 - Andrew: In the context of Santa Susana and AI during the early days or up to the 70s, in terms of Health Physicist, what would their job be?

10:03 - **FX-6** : Basically their goal in life is to protect people from radiation and to make sure they don't get over-exposed. They have rules and procedures set up to minimize radiation like wearing film badges, ionization chambers, little pencil things you can look through. Their function was to make sure operationally that radiation was a safe thing.

10:43 - Andrew: Were they the ones that collected film badges?

10:48 - **FX-6** : Yes, exactly. Process, collect and keep records. At the time the AEC had come up with some rules that you can't have more than so much dose per year, so much dose per quarter. The Emergency Exposure Dose (EED), which was one time in a lifetime. They were a very professional organization. There were some good people there.

11:29 - Andrew: Sounds a lot like today's OCEA.

11:34 - **FX-6** The organization is professionally involved, in addition to the Health Physics society. The NCRP, National Committee for Radiation Protection. They made rules, they made research, they did all sorts of publication. They were part of the federal government and funded. I've got all sorts of books, pamphlets and guides they've written. Radiation protection was a huge thing and it is today. They really come down on it.

12:30 - Andrew: Did the Health Physicists basically follow rules given by AEC?

12:40 - **FX-6**: The AEC, ICRP (International Committee of Radiation Protection), NCRP – because it's here in the United States. The ICRP is worldwide. The organizations that do the research, radiobiology, radiation exposure, they do everything. It's a big organization that looks for cancers – long term, short term.

13:23 - Andrew: Did the Health Physicists at Santa Susana also monitor waste removal and disposal?

13:34 - **FX-6**: Yes, exactly. I did waste. The thing that I was involved in was getting hot material like stainless steel that had been irradiated at the bottom of the reactor. It's a big thing, it looks like a bullet on the bottom that guides the fuel elements into the core of the SRE. When you pull them up they're hot. A lot of radiation coming off. They had to make sure you're not getting too exposed and work with it too much. What I used to do is design 50 gallon drums to put radioactive material into. I can sketch it here. It's a 50 gallon drum like this and it's got a pipe in the center, a real pipe that goes down and you pour concrete all around it and put your radioactive material in there depending on how hot it is. This is your 50 gallon drum that I used to design and work around and watched guys put the stuff in and load these onto a truck. Then the truck went to Port Waineenee. There was a huge number of these things and we took everybody's waste – all the hospital's waste and various people who had radioactive material tracers. They paid AI or somebody to do this. This was called a 50 gallon drum waste disposal. I supervised a lot of design so you had enough shielding so that the dose on the outside does not exceed a certain limit.

15:44 - Andrew: I imagine this is pretty small space?

15:46 - **FX-6**: The pipes are usually steel. At the time I think it was cast iron. Depending on how big the pipe was and how hot it was you would design it. Usually the designs were very simple. I used to do calculations to find out so much. I would get the dose on the surface and that was it. I continued with this container. You take all these containers once you accumulate them and they were being loaded in either Santa Susana or Van Owen. I don't remember how they got transported around. I used to supervise these things being loaded at reasonable distance away. When you accumulated 100s of barrels, you trucked them down to Point Waineenee. They were going to be dumped into the ocean.

17:20 - Andrew: Up near San Francisco?

17:23 - **FX-6**: No that was another one. That was in Livermore and those were the Bay Area stuff. This was down here. They did take stuff just like I did here – radioactive material and dump it off of Farallon Islands. You had to make damn sure that the dumping ground was 1000 fathoms or more – 6000 feet. That was the requirement. All you had to do was find that depth. Down here it's off St. Nicolas Island on the other side one of the lone channel islands out there. We put these on a big barge and you tow them out with this ocean-going tug. 100s of barrels out and they're all strapped on here. I'd be supervising this stuff and the guys would be watching. They were all tied on with a rope and you just chopped them and they all rolled off. The boat would be going around distributing this stuff. We were on the ocean going tug most of the time. It was kind of interesting and kind of fun. Some of these barrels would go down and most of them would sink. Some would be floating, either they weren't loaded properly and someone screwed up. We had a [gun] and we'd shoot them until they went down. But that wasn't very often. 1/1000.

19:36 - Andrew: You mentioned some radioactive steel, how would you fit that into this little space?

19:46 - **FX-6**: I never cut anything. This steel thing was this big around and that big. It looked like a bullet. It was hanging on the bottom. It's a fuel element guide really that hung down so you could put this into a reactor core hole. You can leave it in there after so much time and pull it up and it was hotter than hell since it was in the core. It got neutron activated. Stainless steel gets very neutron activated. There's a lot of elements in there that get very hot.

20:29 - Andrew: Is there a name for that thing?

20:36 - **FX-6**: Fuel rod stainless steel "bullet" guide, I'd call it. It looked like a bullet.

20:45 - Andrew: So that would fit in there?

20:48 - **FX-6**: Yeah it would fit in there. It was hotter than hell.

20:51 - Andrew: And if you had liquid?

20:55 - **FX-6** : I never examined all the stuff that was going in. I was just finding out how many queries would be deposited in there. I designed it for the maximum query levels. Many times it was just gloves and clothes. We never sorted it out that much. We just put whatever we thought was radioactive in that hole.

21:27 - Andrew: Would you say the bullet was 2 or 3 feet?

21:33 - **FX-6** : Yeah about 2.5 feet. It was all stainless steel.

21:45 - Andrew: You mentioned other waste from the area like hospitals. What other facilities?

21:53 - **FX-6** : Any radio-pharmaceuticals people were using like cobalt x-ray stuff people were using for structures and cracks. These were steel people. Cobalt-16 was a big thing.

22:19 - Andrew: I just talked to a guy who operated an x-ray machine at Santa Susana using cobalt.

22:28 - **FX-6** : Cobalt-16 was a great thing to use. 2 and a half mEV - million electron volt gamma rays.

22:40 - Andrew: Area hospitals and also?

22:45 - **FX-6** : UCLA had radio-pharmaceuticals. Generally those things weren't that hot. The hot stuff was really Santa Susana. I don't know anybody else except these people using cobalt-16. When you wanted to disassemble a unit, I was never involved in that, you always know that all that goes in the shipment of hot stuff coming in. You just take that stuff - the GM tube, the ionization chambers - and see how hot it was and that was it.

23:26 - Andrew: Do you recall hot stuff coming from the other areas of Santa Susana? I mean, I'm sorry, outside of the rocket engine testing sites?

23:49 - **FX-6** : You mean what Atomics International was generating?

23:55 - Andrew: Or anyone that was up on the Hill that wasn't technically part of [AI]?

24:00 - **FX-6** : Sure. There were several experimental facilities like the KEWB, Kinetic Energy Water Boiler. The SNAP facilities were up on the Hill. Any kind of waste that would come from those. I think at the time those things really got going. In earnest, I was gone. I helped design the SNAP environmental test facility. I wrote the hazard report for it, which you had to submit to get a permit to build it, but that was before.

24:40 - Andrew: The site is broken into four areas and Area IV included all the DOE/AI reactor testing labs and x-ray areas. <**FX-6** : And hot cells.> And hot cells.

25:00 - **FX-6** All this kind of stuff when you ask where else did it come from, there are hot cells and all kind of facilities that had anything hot (radioactive). There was some experimental stuff down in Van Owen at the AI facility in Canoga Park. They had hot stuff too. I didn't get too much involved in that. Except one time and that was when we loaded what's called... There was a big glass sphere and we were loading this sphere with urinal sulfate solution and we kept loading this thing until... We were plotting the reactivity as a function of how much source you put in. You put in a source and it would go up and up. We were plotting this loading urinal sulfate into this sphere to make it start multiplying. I was involved in that and I think I got a heavy dose from that. There were two guys involved, me and another guy. We were plotting this and showing everybody. It was like a fishbowl. Everybody watching and how wonderful, look at that experiment, we get to see it. That was an interesting thing. It became very radioactive too. It was a multiplying medium. It was going critical and producing fission products. I don't know what they did with it later. I just know I was involved in this plotting.

27:15 - Andrew: I'm going to back track and get some basics. See if we could think of any other things that might stand out in terms of spills and accidents. Do you recall which buildings you worked at?

27:39 - **FX-6** I don't remember the numbers. This Sodium Reactor Experiment building, SRE. I think I visited some of the other ones to collect film badges and take smears sometimes. We used to take this little round pieces of paper and smear it and read it to see whether contamination transferred.

28:04 - Andrew: When you worked at SRE building, primarily you were doing Health Physicist type work?

28:08 - **FX-6** : Health Physics and radiation engineering/shielding.

28:15 - Andrew: Where did you work on the drums? Was that at the SRE building?

28:18 - **FX-6** : I was trying to remember if it was up at the facility or was it down in Santa Susana. I can't remember.

28:33 - Andrew: You'd think they'd want to drum it at the source.

28:36 - **FX-6** That's what I thought, but sources came in everywhere before this. It might have been down in the Van Owen area. I remember there were barrels lined up.

28:50 - Andrew: You were actually on the Hill in '56-'59.

28:55 - **FX-6** : Off and on. I worked there everyday.

28:57 - Andrew: Okay, so during those years you worked for AI, Canoga Park, and you'd go up there.

29:02 - **FX-6** I don't know the average – maybe twice a week or so in certain periods that I would be up there. I would just get on a bus to go up there. A company bus. Sometimes I would just drive up and park my car up there. I wouldn't do both of that. Go by Chatsworth and on up the Hill.

29:44 - Andrew: Do you recall hearing about any accidents or spills?

29:55 - **FX-6** : When the SRE melted, everybody knew that.

30:01 - Andrew: Any others?

30:03 - **FX-6** No, not that I remember. The SRE was the big one.

30:09 - Andrew: There was some evidence of a fluid release across the parking lot at the SRE building multiple times. Apparently no one knows what it was, but they know about it because the guys who tore up the pavement noticed that it was pancaked layers of pavement. They are pancaked, they found out, because there were spills, so they would pave over it. It was layered. There would be a spill and they'd clean up, but then they just repave over it. They did that a few times and they were monitoring... This is when they were demolishing the whole area in the late 70s. This is when they were taking up the pavement when they found it. They found it to be a little hot, enough to indicate there had been releases. This was in the parking lot of the SRE where containers or storage tanks that contain waste, liquids.

31:41 - **FX-6** I'm not familiar with that situation at all. I've never even heard of it.

31:50 - Andrew: In the job that you had there up on the Hill, even if I don't understand the technical side, I can try to get a handle of waste stream – products and materials that come into the lab or into their operation and then the waste material gets thrown away. Was there waste material leftover from whatever operation you were involved in or work that you did? What kind of waste material would be coming out of your shop – contaminated gloves and booties? Fluids that would be used for cleaning?

32:44 - **FX-6** : Those things I can't remember. I just draw a blank. I never got involved in the contaminated clothing.

33:01 - Andrew: For example, the smears fabric that you used.

33:07 - **FX-6** : They were just little pieces of paper like that. And you'd just take them like that and put them in a reader to see if you got some contamination/radiation response from the detector. We took smears all over quite a bit. Generally you didn't have

much problems. I got a lot of these things and went down to the Santa Monica Pier during the time they were doing the Atmospheric Testing and got a higher reading of the upper railings of the Santa Monica Pier than that. That was during the days of open air testing – Russians, Soviets, and we were doing it. I got some interesting stuff.

34:01 - Andrew: Did you do that on your own?

34:03 - **FX-6** : Yeah.

34:08 - Andrew: Were you in a managerial position?

34:11 - **FX-6** : No, I was operating. I was alone. A lone scientist and did my own thing.

34:26 - Andrew: So you don't recall any stories about other accidents or spills out on the Hill?

34:35 - **FX-6** : Really not other than the SRE. And that was the big deal that made a lot problems all over – this radioactive sodium from the loops and hard chunks of sodium. Mostly it was just sodium activation, Sodium-24, and that would go away very quickly. Sodium-24 had a pretty short half-life.

35:10 - Andrew: We have a list of radionucleoides that we're going to sample for and it's based on the current body of knowledge. Are there ones that stand out to you of the radionucleoides that we should test for based on your knowledge and insight?

35:39 - **FX-6** : Basically the fission products – sodium, cesium-137, strontium-89, strontium-90, yttrium. Forget sodium, it has a very short half-life. You've got to look at the long half-life, so they've been around for quite a while. I'm not too familiar with all those half-lives. Iron-55 and maybe Iron-56. I can't remember whether these are all radioactive or not, but I think so. Iron-55 I know is. Nickel is a big one too. These basically are the fission products. I'm just getting involved with some guy writing a story for a movie script on terrorism and I'm just getting back involved with that again. If the terrorists try to get a hold of some radioactive material they're going to try and get it from a small reactor or some college like Oregon State and steal it to make a, not a radioactive bomb, but make it dispersive. Dirty bomb.

38:19 - Andrew: What would make a good script is to go deep-sea diving for all those drums out there.

38:30 - **FX-6** : If they're still. Rusted, gone. That's against federal... You can't do any of that. At the time you could. 6,000 feet you could do that. It's 1000 fathoms. That was the rule, okay you can dump it. It was kind of an arbitrary thing. Nobody did a lot of studies on it, just an arbitrary number. That's about a mile down.

39:32 - Andrew: You know that I am looking for ponds and disposal areas on the Hill that were used like a burn pit and some that might have not been official.

39:50 - **FX-6** : There was a big pond back at the SRE.

39:55 - Andrew: Drainage went into it?

39:58 - **FX-6** : No, just a big pond that had water in it. We used to take the sodium and throw it in there during lunch time just to watch it explode. Eventually I'm sure it's pure sodium hydroxide because if you throw sodium into that, the reaction and such that you get sodium hydroxide because it combines with water. You get this explosion that's really kind of fun to watch and the smoke because it's an exergonic reaction. We used to throw pieces in there.

40:41 - Andrew: Where'd you find the pieces?

40:43 - **FX-6** : Just around, maybe in the back of the SRE. Chunks of it.

40:49 - Andrew: Isn't it reactive to the air?

40:52 - **FX-6** : I don't think they were active at the time. Sodium-24 has a very short half-life. It may have a little bit of activity, so if I got some radiation from it, I don't know. It was more fun doing that than worrying about it.

41:10 - Andrew: So the loops of sodium that went through the reactor – the sodium is heated as it goes through. It's liquid sodium and is it a viscous liquid?

41:35 - **FX-6** : I don't know what the viscosity is, but it's probably more viscous than certainly water.

41:46 - Andrew: Is it a contained loop?

41:49 - **FX-6** : It's contained. There's a primary loop and I can't remember whether they had two loops.

41:55 - Andrew: Can I keep those drawings?

42:00 - **FX-6** : Here's the reactor. Here's the SRE reactor. There's all these fuel elements and that's the core. You had the shielding around it and everything else. Then you had the in-loop and the outlet. This was the sodium loop that I think exchanged – there was a heat exchanger that exchanged with the water because you can't... unless it was a sodium pump...

42:47 - Andrew: They did use sodium pumps there.

42:50 - **FX-6** : The sodium pump is to pump this loop here.

42:55 - Andrew: This loop kind of goes around?

42:58 - **FX-6** : Yes, it goes through the reactor. It circulates through the reactor. There's a heat exchanger here that takes heat from this and exchanges with another loop. I can't remember whether this is another sodium loop or not. If it is another sodium loop, then I think it's exchanging with the water loop here. That goes into a turbine that drives a generator.

43:32 - Andrew: If it's not sodium, would it just be water?

43:35 - **FX-6** : Yeah, it would be just water. I think you had these two loops. This was always radioactive, this wasn't. That's why they were trying to separate them. They were trying to make everything from here on out non-radioactive and make everything here radioactive.

43:53 - Andrew: This would be in the SRE building?

44:00 - **FX-6** : Yeah, this whole thing, the entire thing, would be in there. The reactor, the loops, everything and the turbines were inside. The turbines generated electricity. They lit up on one of the little towns out there.

44:18 - Andrew: They would try to keep some barrier so that all the radiation went that way?

44:23 - **FX-6** : Yeah, that was the purpose of the heat exchanger.

44:29 - Andrew: Aside from weird accidents or faulty equipment, is there not a way for this fluid, whether it be sodium or water, to be contaminated?

44:40 - **FX-6** : No, not really because this is a closed system. The only thing that connects to this is the heat exchanger. The heat exchanger is just transferring heat – nothing else.

45:00 - Andrew: This fluid does get irradiated?

45:02 - **FX-6** : Yeah, absolutely. That's the hot loop. That's really hot. So you had all kind of shielding around it and on the floor. This entire area was down counter-sunk into the lower area of the building.

45:37 - Andrew: So this fluid, would it need to be replaced with time? Does it wear out?

45:44 - **FX-6** : Yeah, probably. I'm not that much of a nuclear engineer to tell you the placement requirements.

45:58 - Andrew: You mentioned earlier there may have been two primary loops? Did you mention that?

45:10 - **FX-6** This is the primary loop here and this is the secondary loop. I'm not sure if there's a tertiary loop here. Maybe it was a sodium turbine, I'm not sure. What you would do was drive the hot sodium in there and maybe vaporize it and turn a loop. In order to do any kind of work, $\text{work} = \text{pressure} \times \text{change in volume}$, you have to have something change (volume). This change in volume is change of state like if you had hot water and then reduced the pressure, then you're going to get steam or gas. That gas is going to be able to drive the turbine. It expands.

<tape 1 side A ends>

FX-6 Personal INTERVIEW – TAPE 1 SIDE B

00:00 - **FX-6** : You have to have this expansion in order to make it work because the pressure's constant.

00:12 - Andrew: There's been some talk about contaminated sodium.

00:19 - **FX-6** It could be contaminated with other than the radioactive sodium itself, which is sodium-24. That could have picked up.

00:32 - Andrew: If this were stored or released accidentally or not, this would be a source of hot sodium, but not necessarily bad because of the heat exchanger.

00:43 - **FX-6** : Unless there was a break between here that caused the break here. This core melted down and this sodium picked up a lot more stuff than just sodium-24. The activation of sodium-24, you have to get a neutron and it goes into sodium-23 and that goes into sodium-24, which is radioactive and its half-life is really low. You can pick up all kinds of fission products if you get an open leak in here or if it's a meltdown. That whole thing becomes full of everything.

01:32 - Andrew: Did you say that you don't know or you don't think this fluid under normal operations doesn't need to be replaced?

01:42 - **FX-6** : I don't know whether it does or not. What you would need to know is what the characteristics of the sodium does when it gets hit by a lot of radiation. In the OMRE, the problem there was when you have this organic fluid coming in there, it gets really gunky. It's like tar. Sooner or later, you radiate it and it gets very viscous like molasses so it doesn't flow very well. The OMRE had failed, that experiment they said forget it.

02:23 - Andrew: That was the East Coast thing?

02:25 - **FX-6** Someplace in the Midwest. P---, Ohio. The question is what happens to sodium. Does it damage it? Does it change the viscosity? The viscosity just went straight to hell on the OMRE. Whether you have to change it or not depends on what the radiation damage is if anything it does to it. Generally something like a liquid or inorganic like sodium doesn't get damaged. If you radiate something like organic, then all these things cross-link. Then you get different bonding and the viscosity goes way up. It changes to gunky tar, so it's no good anymore.

03:22 - Andrew: I know that they had waste sodium tanks outside several reactor testing buildings. Somehow sodium got spent and used up and became waste sodium. How does it get there?

03:46 - **FX-6** : I don't know unless it was some tests that they did. Maybe they did some side tests or sampled a loop. I'm sure they had facilities to sample loops. I wasn't part of that operation.

04:12 - Andrew: Are there any names of people that can help me locate issues on the property that could help us figure out where to sample?

04:27 - **FX-6** I don't know anybody anymore. I don't know if they're still around. There was one called **FX-6** .

04:49 - Andrew: He was working on the Hill?

04:53 - **FX-6** : He was kind of mucking about in the radiation engineering area, but I don't know if he's still around. What ever happened to **FX-6 Personal** ? I think he passed on. I can't recall anybody I really knew at the SRE. There's a guy named **FX-6** . I doubt whether he's still around. Any of my friends didn't really do much Hill work at all. I couldn't identify anybody there.

06:18 - Andrew: We're gathering and collecting documents from Boeing, former AI and Rocketdyne documents, but can you think of any specific documents like logbooks that you might remember or types of memoranda or official records?

06:50 - **FX-6** : The only thing I produced there were hazard reports for the SNAP environmental test facility and I can get my resume and show you that. In fact, maybe I can download my resume.

<looking for resume>

07:41 - Andrew: I wanted to show you this picture. This is 1959 and this is the SRE building. This is the SRE complex and there's a little drainage pond here. You come down and do this kind of snake turn to get into it. Does this look familiar?

08:08 - **FX-6** Yeah, kind of.

08:10 - Andrew: This rock formation is up high.

08:23 - **FX-6** Maybe that's the pond that we kept throwing sodium into.

08:26 - Andrew: It's the only pond near here.

08:29 - **FX-6** Then that's the one. I know it was in back of the SRE. That must be the pond we used to throw sodium into. That's the place. There might have been a place where I had these radioactive drums. They were probably down in Santa Susana, transferred some stuff down there.

09:16 - Andrew: Was it in a parking lot?

09:18 - **FX-6** : Yeah, it was kind of like a sidewalk or road where they had these barrels that we would load. I was checking the outside of them because I designed the shielding for them. I never loaded the stuff, I just designed them.

09:40 - Andrew: Was it up in an area called the conservation yard?

09:44 - **FX-6** : I have no idea.

09:59 - Andrew: Are there any other questions I should be asking?

10:03 - **FX-6** : Is the KEWB facility on here? How about your overlay?

10:10 - Andrew: That doesn't say anything.

10:12 - **FX-6** There's a KEWB facility I think that was over in this area. KEWB and also the SNAP facility. Kinetic Energy Water Boiler, it's an experiment. I used to hang out over there too. I'm sure I picked a few rays over there. And then there was the SNAP environmental test facility, SETF. I showed you that last publication that I did.

11:03 - Andrew: What was that publication about?

11:10 - **FX-6** : They wanted to get a permit to operate this facility with SNAP reactors. SNAP reactors stand for Space Nuclear Aerospace Power I think. We launched satellites with radioactive material in it powering the equipment, that's what SNAP's about. They had contracts to build those reactors. One of them was built with sodium and potassium NAK. They were doing sodium work at the SRE, so naturally they were also the people who worked with the sodium SNAP reactors. We did quite a bit of work for those.

12:14 - Andrew: I apologize I don't know the site well enough to identify the SNAP and KEWB facilities, but this is 1962 aerial photograph. For a point of reference, this is the SRE building here. Are there any particular aspects of those buildings?

12:44 - **FX-6** : Those are the only two I remember other than the SRE.

12:49 - Andrew: Do you recall if there were storage tanks used?

12:55 - **FX-6** : There were probably storage tanks there. I just remember very vaguely the KEWB and SNAP environmental test facility. I don't think at the time they had any radioactive material in the SETF because they had to get a permit. That's the reason why I wrote the hazards report before you could get a permit. I did all kind of calculations on if stuff got loose where does it go in the air? I did those calculations in the surrounding area. That report would have my estimations of what the radioactive material would be and how dangerous it would be if it got loose.

13:52- Andrew: Based on certain parameters of the operation?

13:56 - **FX-6** : Micrometeorological diffusion. I did all that also.

14:03 - Andrew: That would essentially help get the license?

14:07 - **FX-6** : That was the requirement to get an operating license to use the facility.

14:18 - Andrew: Did the KEWB facility also have radioactive material in it?

14:23: **FX-6** Sure, definitely.

14:34 - Andrew: How did that work?

14:37 - **FX-6** It was an experimental fission facility to see how much stuff you needed to make things go critical and to get multiplication and chain reactions. Experiments, basically. It definitely had radioactive material in it.

15:09 - Andrew: Did it have any kind of waste stream?

15:15 - **FX-6** I have no idea. My only function was to go in there and smear around it and see if there was any kind of radioactive material around it, monitor it with the meter and whether there was any stuff around it that was radioactive that could be picked up by people that were working there that were hazardous.

15:39 - Andrew: Did you recall picking up anything of concern?

15:42 - **FX-6** No, I didn't spend a whole lot of time there. I was only there a few times. I don't know, I just remember that facility.

15:56 - Andrew: Are there any questions that you recommend I ask either you or other former employees to help me get a handle of where we should sample? I'm asking very basic questions about waste handling.

16:15 - **FX-6** How big is the area? The area is pretty big. You're looking for someplace that you don't have to sample.

16:21 - Andrew: We want to sample more around certain areas.

16:36 - **FX-6** : Is this the road that separates the Rocketdyne?

16:41 - Andrew: This line is the border.

16:45 - **FX-6** The rockets are way over here. I remember we watched some of them.

16:55 - Andrew: This is another pond right by the way. There's a little pond here. And there's another pond here.

17:03 - **FX-6** : I don't know anything about that. I never hung around this area at all, maybe walked over there a couple times after a rocket firing and that was it.

17:18 - Andrew: Is there anything you thought you might have any opportunity to tell me that I haven't really asked?

17:23 - **FX-6** : What is on here?

17:26 - Andrew: Those are the keys to some of these things that are written on there. I had a group of analysts who don't know the site and go over and look at thing that stand out to them like drums, scarred ground, distressed vegetation.

17:48 - **FX-6** : You have facilities like the KEWB someplace else?

17:53 - Andrew: They went over everything and highlighted things that might be of interest to me.

18:02 - **FX-6** : I spent some time at the SETF and because I was involved in writing the hazard reports. I was involved in the KEWB and going out there and hanging out. That was it. Most of my time was at the SRE. You never got a whole lot of direction. You just did your own thing.

18:40 - Andrew: You were there with a lot of experience and knowledge, but I assume other people would have got some direction who don't know.

18:56 - **FX-6** : I'm sure they did. I can't remember how much supervision they got, but I knew just as much as those guys. They were older and had been around longer, but I subsequently did a lot of other stuff they never did.

19:22 - Andrew: Can I take this drawing?

19:46 - **FX-6** I don't know a whole lot about it. You have a sodium reactor design?

19:51 - Andrew: Yeah, we must. We're interested in knowing wrong disposal of irradiated concrete. When a lot of these building are demolished, a thing that went on over time, you renovated and added onto it because the use would change.

20:25 - **FX-6** : They tried to put a big chill on this sodium reactor experiment. It's a big PR thing. The head of the Atomic Energy Commission came out. He threw the switch, the Jacob's ladder.

<cell phone interruption>

21:07 - George: It was a big deal like that. I remember when they had that meltdown. They were scurrying around like rats. I forgot the guy's name who was head of the Atomic Energy Commission at the time. It was a big deal. We all sat around. He would throw the switch and the big Jacob's ladder. And they lit up one of the little towns. It was PR and they were trying to get the job. Sodium and fooling around with those loops, they weren't going to get that. The reactor industry wasn't going to go for sodium reactor experiments. Water is simpler, pressurized water. Shove that into a submarine and beat them out.

22:16 - Andrew: The conclusion of the interview with **FX-6**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Interviewee(s): FX-6 Personal Privacy

Contact information: FX-6 Personal

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

No Follow-up except for review of documents being mailed to me → never mailed

Message left with me Monday 11/24

20 years at Rocketdyne at Canoga park. Did not work at SSFL.

Identified another man, very old, scared, up in 85/87, friend, FX-6 Personal (sounds like FX-6 Personal)
35 years at Rocketdyne, worked in clean room for parts
FX-6 worked with him at Canoga
FX-6 a Purchase Agent
FX-6 friend worked in Clean room where parts were cleaned; got cancer

Advised him to call FX-6 Personal – has CASE FILE on Canoga Park ops regarding clean room
Case file being sent to me. Update by A Taylor: Documents NEVER SENT; further calls not returned.

Cleaned barrels at Canoga Park. Discussed medical conditions he thinks might be related.



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INTERVIEW NOTES

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Project/Subject: SSFL / HSA

Date / Time: 11/10/09

Page 1 of 2

Interviewee(s): FX-6 Personal

Contact information: FX-6 Personal

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

Interview arranged for Thursday Nov 19th 2009, 9-11

Removed from SSFL and put in De Soto then after few months to City of "Downey" under NASA supervisor of North American Aviation (AI was a division of NAA)

Home Address: FX-6 Personal Privacy → go through gate on left side of garage to backhouse

10 years on the Hill just before SSFL shut down (60s)

1st a Lab Tech, then Supervisory

Storage and disposal: office storage building →

Finished up in radioactive disposal facility.

7 years, not 10, starting in 1958 (~28 years old)

AI Title

Lab tech (1.5 years), then Radiation Disposal Facility Supervisor

As lab tech, worked in small lab south of Sodium Reactor

Duties:

Fabricated and refinement of nuclear materials

Eg uranium carbide

Plutonium, Beryllium

Annealing

Hydrating uranium isotopes testing pellets

Uranium/Beryllium/Plutonium

Previous supervisor heated a uranium carbide disposal cement mixer in a shed... to dispose

NO Tritium

oil used in sodium container as well as Argon

waste from lab consisted of dust and chunks from machining

Page 2 of 2

Health physicists interactions

Good one

Underground storage, in Hi Bay building, of irradiated fuel not protected.

Storage and disposal facility work done → concreted fixed low-level radiation waste

Waste Materials source when working at storage and disposal facility? Some Hi level material. Always knew where what and where the waste was coming from. All was logged, but don't know where docs are, records were all sent to AEC. **If looking for these documents at AEC** **FX-6** **Personnel** **recommends using keywords searches such as “unusable” and “unrecyclable” at ABC**

Prim container before repacking?

What became of those containers? Doesn't know.

Waste disposal of onsite... no details.

Reactor grade materials

ON PLOT OF GROUND NEAR HOT CELL (buried), shallow buries (place is now excavated says **FX-6** **Personnel**)

LAB EQUIP/PARTS STORAGE ON GROUND ACROSS FROM GATE

Pressure vessels, etc.

Suspects these parts might have been hot

See Map locations.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVIEW NOTES

Review for Privacy Act Information before release

Project/Subject: SSFL / HSA

Date / Time: 11/16/09

Page 1 of 1

Interviewee(s): FX-6 Personal

Contact information: FX-6 Personal

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 Personal Privacy left a message with Craig Cooper and I returned the call. FX was a Rockwell employee, but could not recall the years he worked at SSFL but said the labs he worked in were already cleaned out. He worked at the Rockwell Experimental Laser Lab ("RELL") and was sent to "the Hill" frequently but could not remember the building # or Area #. He did not have any information on rad materials or opps. He is sick with a rare disease and thinks it has to do with exposure in the building he worked in but had little other info on that. I referred him to another former employee that helps sick former works file claims.

– no follow-up needed.

END



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INTERVIEW NOTES

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Project/Subject: SSFL / HSA

Date / Time: 11/30/09

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Interviewee(s): FX-6

Contact information: FX-6

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

Message left by FX-6:

“Husband worked for Rockwell/Rocketdyne and was laid off when he pointed out something that was being done” (AT: implication appears to be that he saw something that would cause a release to ground or air or water). FX-6 said her husband’s supervisor FX-6 Personal (or FX-6 or the like) laid him off.

Follow-up: 1. Waiting for call, then
2. Track Supervisor.

1/14/10:

Follow-up complete

Not Area 4, no need to follow-up.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVIEW NOTES

Review for Privacy Act Information before release

Project/Subject: SSFL / HSA

Date / Time: 1125/09

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Interviewee(s): [REDACTED]

Contact information: [REDACTED]

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

[REDACTED] contacted me via the EPA 800 line. Left a message saying his dad worked up there and was an operator that buried barrels. I called [REDACTED] back and we discussed this further. He said his father is deceased. His father was a bulldozer operator that was contracted to do work up there. Said he remembers being told one day, when his father came home, that "today we dumped some barrels that were filled with yellow stuff into a trench up at SSFL." [REDACTED] could not recall the name of his dad's construction company or even if his father was an independent contractor/operator. Said this took place during the 1970s. Said that his father said one or two barrels opened up and spilled the dry yellow material out. Said it was all buried along a trench along a curving road on a downhill slope. [REDACTED] could not provide any additional information and said he does not know what part of SSFL his dad worked on that day. His father was not an employee of Rocketdyne (or predecessor/successors) but only hired to do one odd job that day. Father's name is [REDACTED]

[REDACTED]

END



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVIEW NOTES

Review for Privacy Act Information before release

Project/Subject: SSFL / HSA

Date / Time: Dec 11th, 2009

Page 1 of 17

Interviewee(s): FX-6 Personal

Contact information: _____

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

The following is a transcript of the audio recorded interview:

00:00 - Andrew: This is the interview with FX-6 Personal Today's Dec. 11, 2009.

00:23 - FX-: I went to work there in August of 1956. And I left in December of 1959 to go to UCLA to work on the reactor there. I have my clock number and the serial number that they gave me if you're interested in that. You probably want to spell my name. It's spelled FX-, my middle name is FX-6 and my last name is FX-6 Personal Privacy. And my clock number when I was working there was FX-6.

01:00 - Greg: Is that like an employee number?

01:03 - FX-: You punch a clock when you come in the morning and that's what that is. And the employee number would be FX-6. That's my employee number. And my original boss, the man who interviewed me, a guy at Van Owen at their office in the valley, was FX-6. And he was my boss probably for the first year at least – direct boss – but I never worked at Van Owen. I always worked at Sodium Reactor Experiment. And when I first went up there my title was a Junior Engineer. I did not have a degree at that time. I took pre-engineering in high school, I had four years of math, and I had physics and chemistry and I went to USC for a year as a civil engineer.

01:52 - Greg: So you were in your early 20's when you were there?

01:55 - FX-: Yeah 21 as a matter of fact. I had a little time in the service after the episode at USC and I had some electronics there. That's probably part of the reason I think he hired me.

02:09 - Greg: Did you ever rub shoulders with a gentleman by the name of FX-6 who was a reactor trainee? He should have been around the age that you said you were about the same time that you were there.

02:23 - FX-: The name sounds familiar, but I don't recall that name.

02:27 - Greg: At some we may get back to several pictures that FX- had. He's in front of the control board and stuff.

02:43 - FX-: I'm going to show you some pictures also. My first job because of the electronics background was to supervise the contract electricians who were doing the wiring and particularly the thermocouples. There were thousands and thousands of thermocouples on that particular plant. And I understood about changing the types of wires on thermocouples and they did not. So my job was to supervise them of all the hook-ups of thermocouples from wherever they set them and make the measurements up to the control room where they were read out.

03:23 - Andrew: And this right in the SRE building?

03:25 - **FX-**: I've always worked in the SRE building. The whole time I was there I worked in the SRE building. I also trained on that instrumentation, the parts of the instrument I had not been familiar with before. I was familiar with scopes and meters and those kinds of things. The specialized nuclear instrumentation, the people who had the experience, the older guys, were training me on that instrumentation because when the reactor went critical I went on the operation ship. I hated that. It was a week of swing, a week of graveyard days, and then you had a week off. And I was trying to go to school at night and I was married. It was a nightmare for me, so I didn't last maybe 6 or 8 months or maybe a year on doing shift work. And then they moved me into what they called their experimental section because there that's where I was sort of much more valuable to them. A fellow named **FX-6 Personal**. He came to AI and I think he came to SRE was to do a transport function measurement. Transport function measurement is where you put in a system input to the reactor. In this case there was a what they call a pile oscillator and you put on a known sinu-soidal wave and then you measure the output of the function of the reactor – the temperature change, the neutron level change and all that. They sent me because of my background to Sanborne, which was in Boston. And their oscillographs. And then I came back and set up the oscillographs for measuring the outputs of the transport function. I'll show you some pictures of that. They were able to measure the neutron characteristics, the dynamics of the plant, whether it responds, what the frequency response is. Mathematically it gives you a really long large number of things. In fact that was the first time I'd ever seen it and it was probably the first time it was ever applied to a nuclear plant – this mathematical concept. From there we actually when I went to UCLA, we did it on the UCLA reactor. I can show you a couple of pieces. As a matter of fact there's one sitting right there of a used transport function.

05:56 - Greg: So basically, these measurements were to figure out the output and characteristics of the reactor?

06:02 - **FX-**: Yes, what the frequency response was, how fast it would respond like to the control rods. How the delayed neutrons affected where the delayed – I mean the average time of the delayed neutrons, so how much time did you have for them to make these changes before the reactor would respond to those changes.

06:20 - Greg: Ramp up and shut down?

06:22 - **FX-**: Ramp up and shut down. We did it with sine waves. We had a poison, which absorbed neutrons which went behind a shield that didn't absorb neutrons and ran it down the reactor and as it rotated around, it changed the reactivity so that the reactor power was doing this at whatever frequency we wanted to run that thing. Then from the ion chambers, which was measuring the neutron output and the power output of the reactor, we hooked those up to our oscillographs and then we had an input and an output on the same piece of paper. I could show it to you for the UCLA reactor. I can't show you for this one, they kept them all. They didn't do the mathematical analyses up on the Hill. They took that down to Van Owen. There weren't many computers in those days, so I don't know they must have given it to the mathematicians to do the analyses.

07:08 - Andrew: What did you say that you lowered down into the...?

07:11 - **FX-**: We put the pile oscillator down into the sodium – into the reactor itself. You'll see pictures of the thing operating.

07:19 - Greg: You mentioned also ion chambers – I had not seen any pictures of these things that I could identify as ion chambers.

07:28 - **FX-**: You won't seem them because they're down in near the core. They're under the big concrete shielding. That particular reactor in addition to the activity coming from the fissioning of the uranium – the sodium becomes extremely radioactive (Sodium-15). So everything that was measuring the actual reactor itself was down underneath and you wouldn't see the chambers.

07:53 - Greg: And were these the old style air ion chambers?

07:58 - **FX-**: Compensated Westinghouse, Compensated Chambers – they were this long and maybe about that big around. They had both compensated and uncompensated. The compensated were used to log in the linear power meter. The safety amplifier was used on non-compensated ionization chambers. We used exactly the same ones that they used on the UCLA reactor. I got a spare set when I went back to Oakridge from that helium reactor that never went critical. They let the university have some of their electronics, so we had an extra set of them to do experimental things with. The people that I worked mostly with – When **FX** got promoted, I'm still in contact with **FX-6** through the computer. I haven't seen him in a long time. He got promoted and **FX-6** came to work there. He became my boss. And then a fellow named **FX-6 Personal** old navy man who was also in the electronics end of it. He and I

worked together. And the other technician who worked with me was FX – I guess his name was FX-6, but he liked to be called FX-6 Personal was the other technician who worked closely with me.

09:17 - Andrew: FX-6 was also a technician?

09:21 - FX-: He might have been an engineer. I don't know. He was a naval officer. So he may have gone through an atlas and a degree in engineering at that point. The guy who was head of the entire – the boss of the SRE so to speak on the Hill – was FX- FX-6 Personal Privacy He was the leader.

09:53 - Andrew: Not just of electronics?

09:56 - FX-: He was the overall chief guy, everything. The big boss.

10:02 - Andrew: Out of all these folks you've just mentioned the only one you're in touch with a little bit is FX-6

10:08 - FX-: Yeah he's the only one. There are a couple who came and went. A guy named FX-6 who like myself was not a graduate but an engineering student at the university. FX-6 I guess. He went to UCLA and got his engineering degree after I went back to UCLA and moved to UCLA. I used to occasionally get Christmas cards from him and I'm still in touch with him.

10:39 - Andrew: Did he do similar work that you did? FX-6: Yeah.>

10:42 - Greg: Were these gentlemen that you mentioned that were kind of up the management chain from you, were they 20 – 30 years older than you or how old do you think there were at the time you were there? 40-50s?

10:54 - FX-6 probably, he said he's in his 80s now. I am 74, I'll be 75 in April. He's at least 15 years older than I am.

11:04 - Greg: It's very likely that FX-6 Personal Privacy might be deceased?

11:10 - FX-6 I'm sure is gone. FX- is gone. FX-6 is not much older than me. He's probably around. He moved out from Indiana or Ohio and he didn't like it in California and moved back there. FX-6 Personal. And I know he's passed away because I stayed with him through all of his careers as he did me. The health physicist, the main health physicist was – names are the toughest things for me. <Greg: You seem to be doing a pretty good job by what you're doing so far.> I wrote some of them down as I thought about them.

11:57 - Andrew: Do you know this fellow named FX-6?

12:03 - FX-: No that one doesn't sound familiar. This guy [pointing to name on paper] went to General Atomics and he was big in the HP society. He did some consulting afterward and he was always involved in the reactor emergency response things. I ran into him all the time there and I've stayed at his house too. I'll think of it, but he... Okay, remember we're talking about the 50s and this was only the second power reactor in the world as far as I know. So there was a lot of training. They trained us probably a couple of weeks in health physics procedures alone. I had special training in instrumentation because my area/background was in instrumentation and just had to be converted... They even gave us lectures on understanding the reactor itself and what were dealing with and that aspect. And I did get to operate it on the ship, although I was not an operator. I was the electronics technician on the ship. If something went out I could put new vacuum tubes in. I kept the ink running in the recorders. Anything that was instrumentation-wise that was on the ship that was my job. Because it was back-shift and not a lot to do they put me in a high stool because I couldn't stay awake sometimes. I'd fall off if I went to sleep. They also let me sit and run the reactor on occasion. Even, maybe not to take it critical, but to bring it up to power and stuff like that. Everyone on the ship was supposed to be able to do everyone else's jobs. I think that's a good measure.

13:53 - Andrew: Do you have some of the trainers' names?

13:56 - FX-: No, you know, I don't. The HP guy, as soon as I come up with him and I will come up with him because I've know him for all these years.

14:08 - Greg: Was it pretty well understood by everybody that you were working towards a commercial product on this?

<cell phone interruption>

14:58 - Greg: I assume that the focus of the experiments was to work towards a commercial product?

15:04 - **FX-**: Yes, as a matter of fact they were building one at the time. It was being built in Nebraska and it was a sodium reactor. It was a full size. This was one of the five pilot plants.

<asks if it's a certain reactor>

15:20 - **FX-**: That's a helium cooling reactor. This was across the border. And I'm not sure if it ever went critical. It may have or it may not have. They had two fatal accidents there as we had two fatal accidents. Nothing to do with radiation. All the primary sodium was underneath these huge concrete vaults that were high density concrete and you lift these great big tonnage block off because of the sodium radiation. The tubes were thin and the guy just fell off the edge. You fall 15 or so feet before you hit the tubes and it just slices you up like a big cutting... and he died. The one that died at SRE – when you go down there those pits are very hot and the air circulation stopped for a little bit and there's an inner gas filling when the thing is not there so that the sodium doesn't burn when it comes out into the atmosphere. They just passed out from that. One guy passed out and the guard was supposed to be his mentor monitoring him crawled down to get him and of course he went to and there was no one to see them before they died from asphyxiation.

16:47 - Greg: We always do confined space entry training. And that's the one story we always get. The buddy goes down after the...

<laundry machine interruption>

17:16 - **FX-6 Personal**. He was one of the main health physicists up there. **FX-6** did some of the training, HP training. I was an engineer, I wasn't an HP at that time.

17:32 - Andrew: Is he older than you?

17:35 - **FX-**: Yeah, he just recently passed away. Last Christmas or before. Not much older than me. When he retired from General Optomics(sp?), he went to work for the State of California. By that time I was with the NRC and overseeing the State of California. One of my jobs, I was kind of like Big Brother, was to go out with each inspector and he was one of their inspectors so we always made a joke out of that. He had trained me 30 years before and I was supposed to be taking him out training. It was a good laugh for us. We enjoyed that aspect of it. Yes, we had film badges from before the reactor started up. Everybody wore them. They were very conscientious about wearing them. There were hand monitoring. People like myself did not do the monitoring because if you went down into the pits or anything like that you always had a health physicist to check the thing out before you went down. Or maybe even put extra dosimetry on you depending on what you were going to do and monitor you when you came out or even sometimes go with you. So **FX-6** went with us a few times. I got used to it. Working in the pits was really hell. It was 140 degrees in the pits and you had to make sure that the air was going so you didn't suffocate from the inert gas. I think the inert gas was probably Argon.

19:04 - Greg: A couple of people have said it was Argon.

19:07 - Andrew: In role that you played in doing electrical work, what would you be doing down in the pits?

19:15 - **FX-**: The sensor thing for the endothermal couples. They were tacked onto the piping for instance. If they come loose, I need to go down and spotwell them back on. Or the flow meters – I would go down and see if they got jammed up or not really working. The sensors for the instrumentation were all down in the pits and somebody had to go down and look at these.

19:44 - Greg: They cooled it with Sodium, so all the piping that went out anywhere else had to have thermocouple monitors on them to make sure everything was operating at the right temperature. So knowing how your system was at any given time was crucial. Especially Sodium. I don't think it would necessarily solidify. **FX-**: Oh it did.> It would be bad if it did or leaked through a pump or something like that.

20:10 - Andrew: With these sensors, did you have to replace them sometimes?

20:14 - **FX-**: Thermocouples you can always leave a little slack and strip back reattach them to the pipe. And you mostly do it with a tack welder.

20:29 - Andrew: Not a lot of waste material/waste electronics coming out of that?

20:33 - **FX** -: No and they're not radioactive.

20:36 - Greg: Would you end up pulling the asbestos off yourself to do the repair or that's somebody else's job?

20:42 - **FX** -: Sometimes I pulled it off. And it was asbestos, there's not question about that.

20:47 - Greg: I've talked to several other people who worked on that and they're kind of uncomfortable about that now because it seems like whether or not you wore a mask was up to you.

20:58 - **FX** -: If most of them asked, you just wore a piece of paper over your nose because if you wore a hooded thing and you're working in 140 degree temperature you couldn't see and the glass would fog up.

21:12 - Greg: One gentleman we talked to said even with the mask on because of the heat it was just about impossible to work in. You work in such close confines that it was difficult.

21:22 - **FX** -: Yeah. The other thing as long as I was down there, all the pipes had 240 volt heaters and sometimes the wires on the heaters came loose and I would fix those too. And many of the days I got 240 volt shock, but you can live through it. Health wise, the absolute worse thing and we all had to take turns at it because they don't want you exposed for a long period of time - in the earlier days we used toluene as the pump cooler, not tetraline. And we had a lot of leaks and sometimes the big rotating pumps would seize up on us because the sodium would solidify as you were saying. And we'd pull the pumps out and take them outside. With a little steam generator and just a face shield and nothing more, we'd take turns steaming the sodium off the pump. That vapor coming off as the sodium was going "boom boom boom" - that vapor coming off there would take the mucus right out your throat as you're breathing that vapor down. Talk about a hazard, that was probably the greatest hazard I was in.

22:36 - Greg: I wasn't aware you could use toluene as a lubricant.

22:40 - **FX** -: A coolant. Not a lubricant. The tetraline was a coolant. The way a shaft is turning and comes through a seal - the way that they made seals for the sodium was that they froze the sodium. Freezing to you mean ice, but freezing to sodium is about 200 degrees or 180 degrees. The sodium would come up through and freeze and that would be the seal. The way they made it freeze is by having it circulating a cooling material around where the shaft came through the seal. The cooling material in the beginning there was toluene and then they switched to tetraline. And somehow the tetraline leaked into the sodium is what caused the initial thing. And by the way I was there when - we didn't realize that the tetraline had turned to tar and plugged up one of the channels to the fuel elements or a couple of the channels. The reactor just acted kind of strange. We didn't shut it down, we just kept on running. This is an experiment and we didn't know what was going on down in the core. Even after we did know what was down in the core, we put fuel elements back in it after we pulled those others out and tried it. But officially we didn't go back to power until after I had left. We went back to power several times while I was still there. There were no rules against it remember. We were under AEC, an AEC reactor those days. The AEC had people out there almost daily to see what was going on.

<cell phone interruption>

24:47 - Andrew: The pumps that you were steam cleaning, was the materials in the pumps that you were steam cleaning off hot or radioactive?

24:55 - **FX** -: No. It was before we took the reactor critical. And by that time we learned about the tetraline and switched. We didn't have those same kinds of problems with tetraline that we had with the toluene.

25:10 - Greg: There are a couple of themes that if you can comment on while we're talking that seem to have come up. One is in kind of what you were describing when the tetraline incident started to occur. You were trying to figure out what was going on with it. There were a variety of things to test that. At some point, apparently there seems to have been enough radioactivity built up that the sodium levels started going, there was enough gas coming into the reactors that the sodium levels started going down and they made the decision to vent that seems to be a common theme of what people have told us. There also seems, and this is probably after your time, at various points along the line they took sodium that was either on pumps or on pipes or stuff like this and took it over to a pond that was half a mile or so west from there. If you can comment on any of that I'd appreciate it.

26:20 - **FX** -: That was not radioactive sodium that they took over there. It was after the sodium-15 decayed out. If there was extra sodium or sodium leaked out of the system they'd clean it up and dispose of it in that pond, in that waste pond. But that was on Rocketdyne property I think. I don't believe that was on what we considered to be Atomics International fenced in area. I think that was on Rocketdyne. But it was our sodium, no question about it. They did dispose of it there. On terms of the fission products that were released, hot sodium was excellent – iodine immediately went into it. The xenon – xenon's an inert gas, so it built up in the top of the core, but it was released. There's no doubt about that. The radioactivity that went in the Hi Bay didn't seem to be infected all that high and we were still walking around the Hi Bay most of the time. The only time that we didn't walk around the Hi Bay was that we put a fuel element in our cleaning facility before we put them in hot cell. One of the cleaning facilities I guess they didn't get enough inert gas in there and it caused the sodium to explode when they flushed it with water. It blew the element, this is a hot element out of the core, up into the room and the activity there – everyone ran out of the building. The activity there was extremely high. As far as exposure to the people, it was only for seconds and many feet away from it I think.

27:57 - Greg: Two workers we talked to talked about doing some decon operations in the Hi Bay.

28:02 - **FX** -: Okay I was not involved in the decon operations.

28:06 - Greg: Because they were talking about having to... Well you know how toluene was and all of this stuff. How did you get scaffolding in there and wiping things down. You know the floor buffers that you use on the nice tile floors, I actually got the floor buffer pads and we're trying to bring the stuff up out of the concrete that way, which didn't work.

28:27 - **FX** -: I thought that's where I learned what are the decon agents that do that. We used it at UCLA a lot, but I learned about it up there. You put it on concrete it actually pulls the moisture out of the concrete and put the stuff in solution. I thought we used that up there too. Maybe I'm remembering from my time at UCLA. I thought I learned about it up there. It was a decon agent. It was fairly new at the time.

28:56 - Greg: Alconox? **FX** -: Yeah something like that.> Alconox is laboratory, so very popular.

29:08 - Andrew: I'm still learning about reactors. Just to go back to those pumps for a second that were steam cleaned. If later on during operations after the plant went critical, would that same procedure be done?

29:30 - **FX** -: If the pumps had become solidified, yes.

29:34 - Andrew: Okay, in that scenario, would the sodium be radioactive?

29:37 - **FX** -: They wouldn't do that kind of cleaning operation until the sodium-15 had almost completely decayed away. If we had to work in the pits or with anything in the primary loop after some hours of operation, we had to sit there two weeks until sodium (sodium was a 15 hour half life I believe) we had to wait for it to completely decay away before we did it. After the fuel melted – the strontium, cesium, iodine – all of those things go immediately into the sodium, combined with the sodium so they are not free. We had clean up systems. We had filters. Probably ion resin exchangers and we'd run the sodium through that and we could clean out the fission products that were in the sodium by using those filters. If it was solid, the filters would take them out and so we can clean up the primary loop pretty well. I think the primary loop was on a somewhat continuous cleaning cycle during operation, but if we stopped we would increase that. So we'd get the fission products or whatever happened to be in the sodium out of there and that was all in these pits too. The pits may have been outdoor to the building because the one thing that you could do with this reactor is that we had tanks that were big enough that you could put the entire primary loop sodium into a tank outside so that your sodium loop was empty.

31:10 - Andrew: Were those underground tanks?

31:13 - **FX** -: Yeah, they're in big concrete blocks. Huge concrete blocks. The high density kind.

31:20 - Greg: There were some during the decommissioning. They were showing them because there were still and I don't know one had to mess with the concrete underneath because some had seeped through at some point.

FX -: The concrete blocks that they had to lift off of these pits, they were kind of stepped, smaller at the bottom so they're stepped down because of the radiation. We hired a crane operator to lift one of the blocks out. They were trying to tell him this concrete

weigh such and such per square foot. And he says look I've done this all my life, don't tell me what to do. And of course he picked the thing up and turned his crane over and probably a half a million crane or more because he just wouldn't listen. He was too smart for all that.

32:07 - Greg: Any pictures on the internet of crane operators who don't listen or watch their loads?

32:14 - Andrew: When the pipes are cleaned out – the fission products are cleaned out of it, that material would be stored in tanks outside?

32:27 - **FX** : It would be in the cleanup part of the system, which is sometimes part of it was outside.

32:34 - Greg: So I would assume as you were generating let's say radioactive waste (cesium, strontium products that you'd pull out of it), is it somebody else's job to decide what to do with it? **FX** : Yes.> As for as rad waste or not? What's happened to it?

32:50 - **FX** : Yeah and I don't know what happened to it.

32:52 - Greg: Here's my question and forgive me if I get some of this wrong. I'm going to tell you this story as I heard it from several people, okay? I would be very interested in your comment on it because you seem like you've got, at least with your career, more of a handle and better understanding than some of the other people. The company now, the people that are with Boeing and I don't know why they necessarily need to defend what went on in the past, but they do for some reason.

33:22 - **FX** : Well there was an experiment.

33:25 - Greg: Yeah, I understand. But they're saying that when the tetraline accident or incident occurred, the only thing that really happened was some cladding failed, fuel didn't melt, and there were no release of other things other than iodine-131 into containment or into sodium or anywhere else for that matter. I'm not a reactor physics expert, but it's in my career background and it just doesn't make any sense to me especially when you look at some of the pictures of stuff that were taken at that time. Especially at one point when they were taking the fuel out with that online re-fueling machine that they have and at one point they pulled up a piece of one. I don't know if you were there. One of the people that was there told us about a guy that was pulling some of this up and it had broken at some point and some of it stuck. He panicked on the machine. And basically when this came up watching it on a TV monitor or something and he panicked and ran off of it and was like, "Oh geez, we have a big mess here now." The pictures that I've seen that were in some of the other archives are showing to me what looks like fuel that has definitely overheated. Melting is a semantic term at some point, but there are people that contend that, and of course the one thing especially with the activists now, they use the term "meltdown" rather freely.

35:02 - **FX** : Well it didn't melt down.

35:04 - Greg: Yeah I know didn't melt down. Not like a Chernobyl meltdown. I think probably you've seen the pictures of Three Mile Island and what happened to that fuel. **FX** : Oh yeah.> To me it look more like that where you had some fuel that essentially failed.

35:23 - **FX** : Yeah and I think the cladding failed on it. The stainless walls that the pellets were in got hot enough that they weren't getting enough cooling and melted the stainless. My understanding is they did pull one of the elements apart and part of it stuck to the bottom. They eventually got it out of there. When they pull those up keep in mind they had to go through a big tank of Sodium. So any volatile stuff is going to go in that Sodium as they're pulling it up. Sure there's going to be fission products that come with it, but it goes into. They had two fuel handling machines, both of them heavily shielded. And they pulled the fuel up in there. It'd have been nice if the fuel was all together but that one fuel rod. I think they only pulled one of them apart. I think the other damaged came up as a whole fuel rod. It went right up into that machine. Yes you're going to contaminate that machine and you're going to have fission products in it, but they're still contained and they're still contained in the inert atmosphere. They move them over and put them down in the fuel cell [or holding area], but they're still contained. The reactor itself, the vessel – nothing melted. When we finally got that element out we put another new element down in the hole. Got the hole cleaned out so the sodium would flow through and start up the reactor again. We couldn't have done that if we had a Three Mile Island.

36:43 - Greg: I understand. The fact that the reactor existed several years afterward and then continued to experiment with it, you wouldn't have done that if you had any of the major structure damaged.

36:55 - **FX-**: Yeah and we had air monitors in the Hi Bay, control room and outside that were continuously monitoring the air and recording it on chart. They had particular filters in them as well as looking at gases and they had recorders. That was part of my job too. They had recorders in, so we saw an elevated amount of radiation, but not elevated to the point where we couldn't walk in there.

37:18 - Greg: One of the things that one of the other witnesses described for us was that at some point the offices got contaminated somehow and they took the files in the desks and the stuff that were in there and stuck them outside. Do you remember anything about that?

37:40 - **FX-**: No I don't know anything about that.

37:48 - Greg: The problem that I've been having like anybody, when you're thinking about things that happened 50 years ago time starts to compress itself. You got individual incidents that are weeks or months apart. You can't remember anymore. I'm wondering if one of the witnesses is describing something that maybe happened several months after this initial incident occurred. I'm just trying to understand this because this one witness was able to describe and actually show us a picture that he had of all this equipment and these records. He described the engineers had lost all the records that they were keeping because they got contaminated and were extremely upset about it.

38:40 - **FX-**: I don't know. The Hi Bay itself was under negative pressure compared to other offices in the buildings and the control room so that any airborne contamination would come into the Hi Bay and go up the stack. It would not flow the other way. I've never heard of an incident – and there were multiple fans, so a power failure on any reactor – we had a battery room, generators. I worked on this system too. They turned continuously, they were motor generators that turned continuously and kept the batteries on flow. You wouldn't lose one cycle. If the entire power shut down the line going into the place or going out of the place, the batteries would turn the generator as a motor, the same thing it does on my Prius, turn the generator as a motor and you wouldn't even lose one cycle of AC. They would stay on long enough for the diesel generator, which is a 100 kW diesel generator. It wouldn't be one cycle off from the switching over so that you never lost power for anything. You never lost power for your fans, to your instrumentation to the reactor room, to your control rods, to your pumps. If you were in a situation like that, you didn't demand – you were in shutdown position if that system came on. You wouldn't be running your major pumps, but you can run your minor pumps. That reactor, the beauty of sodium is the heat transfer coefficient is so high that if the whole thing solidified, it still would not melt down. It would carry the heat out to the heat exchanger and either blow it to atmosphere or send it to the generator which made steam and water – I mean steam and electricity. The sodium occasionally in some of the secondary system – the primary system was all under the concrete blocks so the secondary system is the one that shipped the heat over to the pipes.

40:40 - Andrew: Sodium loops?

40:42 - **FX-**: It was outside. We didn't have WWII. Between Christmas and New Year's on a midnight shift and it was raining cats and dogs and all of a sudden we hear this "boom boom". We go running outside and the whole sky was lit up. 1200 degree sodium – one of the seals had broken – so the 1200 degree sodium was shooting out into the rain. It was exciting. It was the most exciting thing I saw out there.

41:15 - Greg: **FX-6**, one of the things we're trying to get our hand around is the allegations from several people, most of them activists.

41:26 - **FX-**: I know **FX-6** (sp?) personally. I've sat at a bar and had a beer with him. I'll tell you exactly what he told me. He said, "I'm making a living on this. I'm going to become somebody famous on this. I don't have to have the right idea. All I have to do is convince the right people." That was when he was trying to shut down the UCLA reactor.

41:45 - Greg: Okay. The allegation on the SRE is that there was an unmonitored release of radioactivity because it exceeded the equipment at the time. **FX-**: There may have been.> One speculates on the inventory that was released and what the significance of that inventory was.

42:07 - **FX-**: Okay. First of all I don't disagree with that the probability was that there was definitely a release and we may not have known how much, but I can guess. But it was inert gas and it was released out of the stacks so the people who worked there were not exposed to it. It was a St. Anna condition at the time that this happened, so it all went out to sea. If you look at the population density of the path of it in those years, you don't look at the population density of the path of it today, it was maybe the little strip of land in Malibu, the sand, there were houses, but between there and the ocean that's about the only place there was any population whatsoever. By the time it got there, I'm sure the concentration was insignificant. And yes I've heard a million theories.

42:58 - Greg: I have not heard that number. I have not heard anything quite that high.

43:03 - **FX-**: But you're talking about being shot up a stack at a high velocity. The stack was way above the roof of this thing, which is about three stories up.

43:13 - Greg: So this would have been Sodium-15 or Iodine-131?

43:17 - **FX-**: Xenon gas. No Iodine as far as I know. The hot sodium becomes sodium-iodine instantaneously. You're not going to release iodine, strontium, cesium. What you're going to release is xenon because xenon is an inert gas.

43:39 - Andrew: If there were no winds hypothetically, how would that deposit itself into the environment?

43:53 - Greg: Xenon's inert. It would probably just stay in the air and if it touched anything it wouldn't necessarily react with it. It's fairly light.

44:02 - **FX-**: Once it's out in the environment, the concentration is way... [tape 1 side A ends]

FX-6 Personal Privacy – TAPE 1 SIDE B

00:00 - **FX-**: Argon has no body uptake. Xenon has no body uptake. So the only exposure you'd get – radioactive – is when you breathe it in and out at the time it's in your body in your lungs, it doesn't stay in your body whatsoever. So the exposure still would have been fairly low even though the concentration at the point of release would have been very high.

00:30 - Greg: The one gentleman that I talked to late last year was the one that was a reactor operator trainee. I don't know if he was any good at his job or not, but after this incident several months probably April in the 60s they let him go. I don't know if they let him go because they were going to discontinue the program or it wasn't working out. You're not going to get that kind of information out of somebody. He talks about going up behind the SRE where there was a weather station located.

01:06 - **FX-**: Up on the Hill? <Greg: Yeah.> You're going to see some pictures in just a few minutes.

01:12 - Greg: Okay. And checking to make sure which direction the wind was blowing at the time because they did want it to go out to sea. Apparently a lot of the guys lived in Moor Park, so they didn't want it blowing that way. I guess what's now Simi Valley was just basically a road with a couple of houses on it at the time. Nobody was living there and Moor Park was where everybody lived or you lived on the other side of it.

01:36 - **FX-**: Moor Park is the town we isolated and gave it nuclear power for a month. It was the first city in the world to exist on nuclear power independently. We even beat the reactor in Pennsylvania that was the first reactor online, we were second. Shippingport.

01:57 - Andrew: I want to back track just a little bit about my main objective, Area IV. I'm trying to help the folks who are sampling.

02:08 - **FX-**: You're not going to have to help me because I don't know the area.

02:12 - Andrew: Area IV was the western edge of Santa Susana.

02:17 - **FX-**: And it's where the SRE was located.

02:19 - Andrew: SRE was located on the northern tip. I have aerial photographs I could show you. So we're going to take soil samples, groundwater samples, samples from different depths. I'm trying to help those sampling teams partially led by Greg here figure out where the best locations are to take more discrete samples. I'm looking into where waste materials might have been deposited or released or spilled accidentally or on purpose. That's why I keep harping on this steam cleaning the pumps and underground storage tank outside that kept the materials.

03:08 - **FX-**: There was a cement pad on the north, big double doors, and that's where we took the pumps and did it right on that cement pad.

03:18 - Greg: We've seen pictures of that.

03:21 - **FX-**: The tank that we're talking about that holds the primary was just to the east, right up against the building, east of that pad.

03:31 - Greg: To fill in a few more details, the company had the property sequestered that Areas I, II, and III were fairly focused on rocket research. They went up through the Apollo engines. They were run up there. <Jack: I remember seeing those shuttles.> They confined all of the nuclear research and experimentation to Area IV. They worked on snap reactors, they had large hot cells, they did plutonium.

04:00 - **FX-**: They had some little reactors. The operators and including myself – I am not an operator. I had 20 years of senior operator license at UCLA, so I've been through the program. I taught the program a long time myself.

04:20 - Greg: The interesting thing with the uranium and plutonium fuel fabrication that they did up there and down in Canoga. It seems to be occurring the time the SRE was in operation, there was a lot of uranium fuel fabrication going on in another part of the site. They had a lot of problems with uranium carbide fires. Several workers, we talked to one not too long ago involved in that and had no idea what – they knew the name of the building the sodium reactor experiment – but they had no idea what it was. No one ever told them about it. It seems like the company kept everybody – “This is your project. What's going on over there was not really your business.”

05:09 - **FX-**: There were some NAK experiments going on in some of those buildings too. A combination of sodium and potassium, it melts at a much lower temperature than sodium did. The sodium melted at such a high temperature that was one of our problems, keeping everything to heat to that sodium would stay liquid.

05:28 - Greg: Exactly. The main focus of the study we're trying to do today is there seems to have been in all the years they were doing all of this stuff past time that you worked there – the hot cells – we talked to one guy a couple months back who was a health physicist there and he talked about the experiments in the various hot cells working. The health physics staff were supposed to monitor all this stuff. They didn't know what was going on. Nobody would tell them. When there was a release on site, when one of the alarms went off they had to figure out which cell it came from, who did it, the significance of it and all this stuff. Two guys that worked there at the same time talked about a tremendous frustration from the health physics staff trying to figure out what was going on in the site because of the way they ran it. That's fine, it was the Cold War, I understand all that stuff. From my perspective we've got 700 acres we've got to look. The companies cleaned up things over the years. The DOE have cleaned up over the years. Have they done a good job? Is there any buried treasure out there because they've found it in the past. If it is we want to get it out of there and what's the significance if any of leakages that might have occurred. I'm talking about things that might have gotten in ground water and off site. There are huge allegations and problems. We have to try and figure out the significance of all that. That's where we're going with the study and the site history information.

07:16 - **FX-**: Have you cornered down the reactor? <Greg: Yeah.> What did you find, nothing?

07:21 - Greg: Not anymore. They dug it all out years ago. It's not just the SRE. It's the other facilities on site.

07:33 - **FX-**: Working there you also meet people from Rocketdyne. They had some pretty serious chemicals over there that are hazardous too. In reading – I am on **FX-6 Personal** (sp?) list – **FX-6** (sp?) has kind of just push those things all together and makes it one. He doesn't distinguish those chemicals from what is going on in the nuclear plant. He makes it one big issue. There may be this pond you're talking about. Yes ground water from this pond soaked into the ground. That would be chemical problems. I don't think anything radiological. I think we took sodium that was radioactive.

08:18 - Greg: Interestingly enough, when they dug it out in... **FX-6**: Did they find isotopes?> Yes the did. **FX-6**: What isotopes did they find though?> Cesium and Strontium in the 80s. It had been excavated once.

08:35 - **FX-**: That's fission products. Oh, let me tell you something. I was also responsible for monitoring the UCLA reactor. I do wipe on the campus because people are concerned about releases onto the campus. One day I wipe and I got cesium and strontium. There's no the reactor could be putting this out. When the Chinese did their bomb testing, a lot of it drifted here to the U.S. Fairly

high levels, levels that we would require decontamination for were on the streets at Westwood. On the streets I just wiped and those were levels if it were my reactor I would consider to be decontamination.

09:24 - Greg: It's interesting you say that because one of the guys we talked to, apparently he's 62 early 63 before the test ban treaty went into effect, there was a shot that went off at a Nevada test site that apparently changed direction and came down and they picked up on the air sampling systems at Santa Susana. Some guys came from Las Vegas down and said, "We would really like these samples please," and took them back to Nevada. That was kind of interesting, too.

10:01 - **FX-** What you're saying in terms of the concentration. However I do think you can analyze the material and know whether it was from weapons or from a reactor.

10:14 - Greg: Well if memory serves, when they were cleaning this up, when they actually got down to where it was, I don't remember the actual pico- per gram concentration, but there were mR per hour readings off the surface of this stuff. It was enough to make a survey instrument react to it. All of that came out of there. From the company's perspective up until that time they said, "We never disposed or reacted out any contaminated sodium from that reactor." To me the question still remains the sodium that was in the primary loop, where did it go? It's not clear to me and I haven't run across a report when they started doing the decommissioning where the sodium went. The sodium in the secondary system, that's easy. They took that away over to the pond and reacted that off.

11:14 - Andrew: That's separated?

11:17 - Greg: They're not connected to metal pipes. They're not connected to one another. If that had failed it would be a big deal.

11:26 - **FX-** That would have been a big deal, but that didn't happen.

11:29 - Andrew: I was not aware there was not a record of where primary loop sodium went.

11:35 - Greg: There's speculation about it. **FX-** What's the speculation?> That it went to Hanford, but I don't know why it would have gone to Hanford.

11:43 - **FX-** It would be hell of a lot of truckloads. When I first got there there was no sodium on site at all. We're talking about dozens of 18-wheelers with 55-gallon drums of sodium on them. We had a special place where we would put the drum and put heaters around it and put asbestos around it. It would heat the drum up and run it into the system.

12:07 - Greg: The sodium was in kerosene matrix or some kind of oil when it was shipped? **FX-** Just in drums.> You must have some kind of void space on the top of it. You just pushed in Argon gas? And it'd hold? **FX-** Apparently it held. I was there when they opened them.> Another guy we talked to later on... **FX-** It was solid though.> I know. If it was exposed to air it would have burned.

12:34 - **FX-** Well moisture, you're right.

12:38 - Greg: One guy was talking about when sodium came in the early 60s that it was in I don't know what kind of oil it was, they had a name for it. They just had so much of it they were using it for other things and eventually it started getting disposed of too.

13:00 - **FX-** I don't remember oil. It was just an inert gas used. You set the drum upright and you put your fittings on it with the valves and everything in the upright position. The room was very dry and then you'd set the drum up here and you wrap it with the heaters and asbestos. You start heating it up and you got to a certain temperature. You open the valve and you had to have a vent at the other end. We did have it hooked up to a cylinder of Argon to push it out. We'd flow the sodium out and into the main tank for when we're going to fill the reactor.

13:38 - Andrew: We're talking about an uncertain volume of sodium in the primary loops. It does get changed out because you had to clean out the pipes.

13:50 - Greg: You want to keep it clean, so it's run through filter beds. In essence, you can use it forever if you wanted to.

14:00 - FX-: Yeah it's just like water on a reactor whether it's a submarine or the UCLA plant we had filters and mix bed the ionizers. You could drink the water that ran through the core. It was a lot cleaner than the water you got out of your tap. What do you do with the filters? You shipped them as RAD waste normally, but there was very seldom much stuff in them.

14:25 - Andrew: If the primary loop sodium was disposed of in a pit...

14:30 - Greg: After FX-6 time, they kept doing things. From what I understood from other records of small incidents that occurred, at some point that sodium primary loop when they decided to take it apart it had to go somewhere. <FX- It's going to have some fission products.> The difficulty of dealing with this if you let everything get totally cold, you've got solid sodium you have to deal with and you can't really have solid sodium in a reactor. To get it out it's got to be liquid again. You're not going to get down there with a hammer and chisel and chip it out because you can't do that. It's got to be pumped out at some point. So when they made the decision, "The experiment's over, we're not going to anymore with this." A decommissioning plan had to go in effect like that. They had to start dealing with it right away.

15:30 - FX-: They probably put it back in 55-gallon drums would be my guess.

15:36 - Greg: One of the guys we're talking to and I'm still trying to figure out, his memory is not too good on this. He talks about a decanting area that took secondary loop sodium that went out in 55-gallon drums. He just talks about inert gas and he didn't know what it was. I said argon. It's cheap enough to be used because helium at the time would have been somewhat expensive to produce and argon would have been way cheap because you get that from oil. That's what they were using. He said he was friends with the guy that was responsible for taking it up to the pond and reacting it off.

16:23 - FX-: I never got to the pond, but I knew we had one and that when we had contaminated, dirty or leaked sodium we'd scrape it up and put it into something to take it over to the pond and dispose of it.

16:35 - Andrew: This is a concrete – the pond is concrete lined?

16:43 - Greg: No, this was what was called the sodium burn pit, which was just a dirt hole that had water in it and they would... It was on the Westside of the site. It didn't have a liner in the beginning. That's fairly clear because of the excavation that had to do on it to clean it out. <FX-: I thought it might have had a liner.> They pushed stuff off into it. Depending on how quickly it reacted, sometimes they would pull the guards in and say, "Use a high power rifle and see if you can some of this stuff to break open so it would react off." We talked to one guy who was a guard and he liked shooting at this stuff because it was like, "Hey this is cool." When the sodium hits the water, there's a big fire.

17:31 - Andrew: Let's show FX-6 the map of Area IV we're talking about.

<showing the map to FX-6>

18:08 - Andrew: I've been talking to lots of folks, not to just scientists and engineers like yourself, but also guys in maintenance and testing who went around and fixed leaks in steam pipes. So I'm getting a fix on potential disposal areas of concrete from labs from when they did renovations and where that went. So I'm getting a fix on where hot stuff might have gone. Radioactive when I say hot. Part of the job I feel like I need to do in addition to helping sampling team is to help the community feel like every rock has been unturned. We've talked to all these people, we've heard all their stories and we're trying to document it. To the extent we can we'll corroborate stories and if we can't we can't, but at least we've documented it and everyone hopefully will be happy.

19:12 - Greg: From my perspective, I'm just trying to understand the significance of all this around the cleanup.

19:25 - FX-: That's this road. <Andrew: Yeah so this little turn off here where it connects to that black line is right here.> There were some little reactors out here. There was the L-77, which they were going to sell to schools. There was one more. And then there was FX-6 <last name> in charge of the organic moderator. I don't know if that was a zero power reactor or if they got that far or not because one of the companies in the east did build an organic moderator reactor. We were going to go that route, but they beat us to it. It never progressed beyond.

<looking for a map>

20:34 - Greg: The one thing we have at EPA is access to a lot of the old aerial photos that were taken for various reasons. Then they have specialists that look at what it all is.

21:00 - **FX-**: The sodium pump cleaning would be right about here. The pit that I'm talking about that has a tank for the core reactor sodium would have been right here.

21:20 - Greg: If we could go to the site right now, it's covered with a piece of plastic. It's all gone. The reason it's covered with plastic is because the soil they brought back after they did all the excavation had mercury in it. So they had to take it back out. It wasn't from the site, it was from what they brought in.

21:46 - **FX-**: How close are they going to have living at this thing?

21:49 - Greg: Not, but they still according to California have to clean it up. The only thing that is there is the remains of the little stairway that went up to the mountains and Hill to the backside where the weather station was and part of the old gates up there. That's the only thing left.

22:05 - Andrew: Which I think is this little hill up this way.

22:10 - **FX-**: We used to hike up there when the sun would come up when we're on the midnight shift.

22:15 - Andrew: I was talking to this guy who was involved in the demolition of the area. He did the monitoring of the soil. They found at least three different times this pavement here was paved over. He was with the team that dug up the parking lot and he was doing monitoring. They had pancaked levels of pavement that had been paved over and between each one was radioactive materials. When he talked to his supervisor, he was told that there were spills of some sort across the pavement and it was easier just to pave over it then to dig it up. We're probably talking about small amounts.

23:10 - Greg: I remember early on as far as cleanup problems you just have to deal with it later. A lot of the times if you get surface contamination or if it's alpha or something like this you just paint over it. Sometimes you pave over it, but it still doesn't make the problem go away. At some point you have to deal with it.

23:27 - Andrew: They dug it up, but he thinks the material got placed on another part of the property as clean fill. That's an example.

23:39 - **FX-6**: There were some pits outside that were pretty deep, maybe 20-30 feet down. The hot cells were in a building, which was underneath the building in this corner. They all had drains and they had to drain somewhere into a tank. I think that stuff was on this side. I remember Frank Bold had me suit up to go down in one of those holes one day to do some fixure on instrumentation. He was concerned there was some contamination. I had to climb down a rope ladder with booties and gloves and totally covered up with a face mask and all. No harness, not in those days. I know there are pits along there. They're quite deep.

24:38 - Andrew: Concreted lined pits? **FX-6**: Pretty much concrete lined pits.>

24:42 - Greg: There's quite a catalog of pictures when they took all this out of here. The pictures are well identifiable. None of that stuff's there now. It's all gone. They took all the concrete out to depth and excavated quite below that.

25:00 - **FX-**: What were they finding in the soil? <Greg: They did find cesium and strontium in the soil.> At what concentrations?

25:08 - Greg: Low, but over cleanup level. I don't remember exactly what they were. **FX-6**: Cleanup over the bill that was passed by State of California?> Not SB-990. This was when it was cleaned up back in the 80s. As far as I'm concerned how that impacts our study today, it probably doesn't. We're probably going to go back in there and find out it's still clean.

25:28 - **FX-**: Why don't they put a fence around the whole thing and walk away?

25:31 - Greg: Eventually Boeing will get the property back from the DOE. DOE only leased it and what we found out was the terms of the lease say that Boeing or Atomics International were entitled to get the property back in the condition that it was rented, which they're interpreting to be clean. Boeing has said they want to give the whole Santa Susana Field property up for some kind of day use park, which several other things are in the same area. Our charge is to find out if that can happen to it. If it can't and we find areas of contamination that between DOE and Boeing will get those cleaned back up again.

26:20 - **FX-**: The level of contamination where somebody lives and particularly if they also farm vs. the level of contamination where you would have a day-use thing is different.

26:32 - Greg: I agree with you, but the way the California law is, I'm sure you're familiar with the way EPA does risk 10-6, 10-4. That law was written where we have to start at 10-6 and work our way up from that. From our perspective in doing laboratory analysis on soil, we can't go to 10-6 levels. The technology does not exist. We're making measurements and they end up being pretty expensive measurements at either 10-5 or 10-4 levels. That's all the technology can do. We're going to have to run a risk analysis on this. Even though no one is ever going to live on the property or farm on the property, the way that law was written, that's the way we have to work it. I've had all kinds of people that are health physics folks say, "Gee, you shouldn't be doing this." I'm sorry, we're stuck doing it this way. That's kind of the way we had to approach it. I'm down looking pico- at per gram of radioactive material and comparing that to some kind of eventual cleanup.

27:50 - **FX-** You're almost down to the level where we're talking about background radiation from other things.

27:54 - Greg: Exactly. That's been one of the hard things we've done here. You know your work from nuclear reactors they did all this pre-operational studies. I used to be with the State of Mississippi before I came to EPA and my group had done the pre-op studies at G nuclear reactor in Mississippi. We took samples for years trying to establish background, so if we ever needed that we would have it. On this site we can't do that because people didn't do that thing then. There are two formations on the site. There's a Chatsworth geological formation and the Santa Susana geological formation. So we had to go off property to get background samples and we had to look for places that were undisturbed for basically the last 50 years, which is tough to do nowadays.

28:47 - **FX-** Beyond 50 years. We're getting close to 50 years on this reactor.

28:51 - Greg: Right, we're looking at historically not being touched. If you look in any place where there's significant amount of flat spots, homes or a town is there now. Other places where it was flat if it's out in the boonies or out in the mountains, somebody dugged oil or ran cattle or they farmed it or something like this. Especially with the amount of fires that would come in and out of the area, there's fire trails all over the place and the firemen would routinely bulldoze those things or burn things. We had to find background locations to make an adequate comparison to this. It was really difficult. The samples have all been collected, but we haven't run them through analysis yet.

29:45 - **FX-**: Let me show you some pictures. <looking at pictures> One of these is the input to the transport function and then it goes through the reactor and then one of these is the output. This is the first use of Sandborne equipment, primarily EEG and EKG machines. The first use in industrial, especially in nuclear. That's the control room. They had a little room for experimental material. This is the reactor console right here. This is the engine behind from the sodium reactor. Here's pictures of the console. That's me, they set up an external thing so I could go down and make measurements in that area. Here's pictures that are mostly taken shooting down the Hill from behind.

32:52 - Greg: All of this is just a big flat spot?

32:54 - **FX-**: Yeah. This concrete thing here, that's where the primary sodium tank was located, was emptied, was reacted, was running and it was full and when they'd work on the reactor they'd pump the sodium back into this tank right here. This pad right here is where we cleaned the sodium pumps. We had a portable crane and we shipped them from internal crane to portable crane and come out here and shoot them with hot steam. The stuff would blow.

33:37 - Andrew: Why would sodium need to go and how would waste sodium reduce to make it go away?

33:45 - Greg: If they're working on the reactor they can't have the sodium in the reactor when they do it so they have to pump it out. It's got to go somewhere.

33:51 - Andrew: They would reuse it? <Greg: Yeah it was expensive.> How would waste be produced? Why would there be a need for sodium to be taken away from this?

34:05 - **FX-** On the base of the pump if the toluene was not efficient and the pump would seize and the sodium would solidify. We had no way of getting that off of there. So we'd bring it out here and shoot it with water.

34:21 - Andrew: Now you're talking about pumps with sodium in it, not from the primary?

34:27 **FX-6** It's from the primary before the reactor started. We did a lot of testing. I was there for most of the construction. We did a lot of testing of the pumps. At first we didn't completely understand sodium being used in this fashion before. This is totally new engineering. This thing right here is where we put the drums to melt the sodium that came up in the trucks. This is the secondary loop where the heated sodium from the pit. The heat was transferred from the secondary. There's a heat exchanger in here. If we needed to get rid of the heat because of a shutdown or something and the power plant couldn't take it – this is the steam power plant – then it would go out of the heat exchanger right there. The secondary pumps are in this area. The primary pumps are underneath the concrete and the sides. Did you know about the steam generator? They were worried about 1200 degree sodium and water. There was a layer of mercury between the water jackets and the sodium and what happened to that mercury I have no idea. We're not talking about a small quantity of mercury here, we're talking about maybe a few hundred gallons. I do know that there was mercury in there, so if the pipe corroded through the sodium would either go into the mercury or water corroded through it would go into the mercury. The sodium wouldn't go directly into the...

36:02 - Andrew: Is this something that DTSC needs to know? How much volume of mercury? **FX-** I just don't know.>

36:12 - Greg: One of the things that we're going to have to do is probably go back. Were you still around when Larson (sp?) came around? Do you know what that is? **FX-** Yeah I know what that is.> One of the things that we're doing on this is a historical site assessment. We've got a team of about 6-8 people that are doing nothing, but documents. One of the of course decommissioning of all this stuff they're looking really close for it to see what the significance it has. Part of reason we're trying to do this is we've got a list of radionuclides used up at the site that we think could possibly still be around and we're trying to make sure our list is good enough. Maybe if we have too many, we don't need to have all of them on there. That's what we're looking at also. California DTSC is doing the chemical part of this, not EPA.

37:07 - Andrew: That's why I asked if I should give that mercury information to Laura.

37:14 - **FX-** The heat exchanger I heard had mercury in it. It had to be a unique one. The first submarine was the Nautilus. The second submarine started out to be a sodium cooled reactor, but the guy who headed that program **FX-6**, was really scared of the sodium underwater. So he had them pull that whole system out and put a water system in. We got the steam generator up here and plugged that as the secondary steam generator, which did not have the mercury transfer in it. I think that was used towards the end, too. Two conversions from the sodium to the steam to turn the turbine. That's **FX-6**. He and I worked close together, he was another technician. This was on the reactor floor. This is the pile oscillator and it has a shaft that goes right down to the reactor core. These are control rods. This is our oscillator. This is the motor for it and the sinusoidal input – we got the input information on the top. The right angle shaft goes down into the core of the reactor. It spins around on itself. That's how we create the sine waves of the power. Here I am at the end of the oscillator. We have the Sandbornes set up. This is the power supply to the chambers that we're using. These are the Sandbornes to look at the output/input of the information that was going on. They didn't like us out there in the reactor core. So they moved us into that room – you saw that other picture. You can't really see the vertical shaft down to the core.

39:27 - Greg: This whole system is custom made for this project? **FX-** We built it in the shops. You're right and we built one similar to the UCLA reactor.>

<talking about swamp coolers>

40:08 - **FX-** You couldn't call up a company and send me a pile oscillator. There's no such thing, so we had to build it. This is the paper coming out. I think this is a four-channel, so we had a lot more information coming from that. This is **FX-6**, he's out on the floor. They didn't want us on the floor while the reactor was running at full power. We did do transport function at full power. I gave lectures on the Sandbornes. This is the trip report from sending me back from Sandborne. This is for **FX-6** the ship supervisor, a procedure for the hot trap and this is one of the traps of the sodium reactor, you're cleaning up the primary sodium and how to do that and operate it. The ship supervisor was **FX-6** and I worked for **FX-6** at this particular time when I was on the ship.

41:44 - Greg: Are these ____ (?)graphs or are they just blue carbons? **FX-** I think they're ____ (?)graphs.> Apparently it was widely circulated enough that they decided to type them up on ____ (?)graphs.

42:00 - **FX-** 26 of June 1957. This is a long time ago. This is **FX-**, experimental unit personnel. I told you I don't get along all too well on the ship. So they moved me over under **FX-6** in the experimental unit. This is where we started doing the oscillator test and things like that. I still did a lot of instrumental repair. That was primary job. This is **FX-6** or **FX-6** he didn't like

FX-6. Here's FX-6. He was the chief HP. I don't know if he's still alive, he probably is not. I mentioned FX-6 he worked in the experimental group with us. I don't remember FX-6

42:54 - Andrew: Chief HP that was just assigned to the SRE?

42:57 - FX- Just to the SRE primarily. I don't remember FX-6. FX-6 was an undergraduate that came up to work with us. He primarily was going to UCLA, but he hadn't graduated UCLA by the time I moved to UCLA, so he and I were friends. I kept in touch with him. I had not kept in touch with FX-6. FX-6 I kept in touch with. Here's some more names. I don't know FX-6. FX-6 was one of the other ship supervisors. FX- is the guy I told you I worked with in the experimental group.

43:39 - Andrew: Are all of these names part of the experimental unit?

43:43 - FX-: Yes these are. FX-6 I think he was over something but his office was not at SRE, it was down in Van Owen.

43:59 - Greg: Is this FX-6 a local boy here? Was the road up to the site at the time that you worked there called FX-6 Personal FX-? Because that's what it's called now. <FX- I don't recall.> Okay because maybe he's a local boy and his family land was up in there or something.

44:16 - FX-: I don't know these people.

44:18 - Andrew: Can I take a snapshot of those list of names?

44:21 - FX- Sure. Here's FX-6. He was the head guy at the site. Don't know FX-6, but my guess is it's got to be up from the Van Owen office. I never worked in the Van Owen office. I was interviewed at the Van Owen office. The very first day of work FX-6 took me up to the site and I was there the whole time.

45:12 - Andrew: <reading something> Materials and radiation unit. Fuel elements development.

45:17 - FX- I don't know FX-6. I'm still in touch with FX-. Recently he said he's in his 80s. He worked for Floor Daniels after he left up there and he's retired of course.

45:38 - Andrew: Did you say FX-6 did similar work as you?

45:42 - FX- He was the guy who hired me and hired the boss. For the first year during construction he was up at the site almost every day. When I went on the shift he got promoted and went down to Van Owen. He was only there on occasion. When I went to the experimental group I worked for FX-. He's probably still around, he was only a few years older than I was. He was just out of school. FX-6, he was head of the entire Atomics International down in Van Owens.

46:39 - Greg: He's not alive anymore.

46:53 - FX-: That's the UCLA reactor console. When I went to UCLA we were brand new too. There were just three of us, FX-6 Personal Privacy our director down there. I worked under him as a technician, but I quickly got promoted to assistant supervisor. After three years he resigned and went someplace else and I got his job.

<end of tape 2 side B>

FX-6 Personal INTERVIEW - TAPE 2 SIDE A

<looking at UCLA reactor photos>

02:22 - Andrew: I think we're done here. Is there anything else you think will be helpful for us in our investigation?

02:36 - FX-6 I'm not sure that it's helpful for you. Because I went to UCLA, I saw my radiation records and I never got more than 100 mR at any time. You get more than that, you take a CT scan these days. I was there when it melted down probably on the ship because we didn't know it melted down. All we knew was some of the instruments - in fact they had me take that recorder off and put a signal in to make sure that recorder is working right. We don't believe that recorder's in. That the kind of thing I was doing when they were trying to figure out what was going on with the reactor. Yes the fuel did heat up to the point where because it wasn't getting

coolant from the sodium which was blocked because of the tetraline kind of turned to tar at the bottom and it melted through the cladding. I don't call that a meltdown, a cladding failure. We were an experiment after all. There were no other sodium reactors in the world at that time. There were a lot of good things about sodium. Like I said, you couldn't have the problem you had with pressurized water reactors like they had at Three Mile Island because if sodium even solidified it would carry the decay heat away from the reactor and cool down by itself. We could blow it out the air blast heat exchanger we had outside. There were a lot of good things. The other thing is when we were producing electricity for Moorpark, our temperature of our sodium was 1200 degrees so we were 40% efficient. Even the best water reactors today are only 30-35% efficient so we were more efficient than any of them because we could carry a higher temperature. When you get water at that temperature, you're talking about 2200 psi and you've got a lot of problems to deal with. We're talking about with the sodium reactor that's atmospheric pressure.

04:44 - Andrew: Under normal operations, what radioactive waste is produced and how is it shipped out?

05:10 - **FX-** I can certainly talk about that on the research reactor. The whole idea of research reactor is you put things in to be irradiated or manufactured, so we had a lot of handling things that came in and out of the reactor. Up there it would be only if something failed and they had to take it out of the primary loop and repair it. If it was failed beyond repair, they'd put something new in. That would be contaminated. They let it sit around until most of the radioactivity decayed away. It was primarily – I was wrong, it was Sodium-24 15 hour half life. They let it sit around along as they could and it was primarily decayed away. You didn't see a lot of fission products because on that particular reactor the Sodium picked up most of the fission products. In the release of the fission products when the fuel melted, it went into the cover gas (Argon) and it would mix with fairly high concentrations of Xenon. They didn't want a lot of pressure on top of the reactor core. They want enough to force the sodium down, so they would release it up the stack. During the meltdown – during normal operations, the cladding didn't leak.

06:37 - Greg: As in any reactor, you want your coolant sparkling clean.

06:41 - **FX-**: As clean as you can get it. We were making Sodium-24, but Sodium-24 didn't get out either. It was not a vapor. It was in the liquid Sodium.

06:50 - Andrew: You know about the drums that were packaged and sent out for dumping in the oceans. I talked to one of the guys who designed the drums with the cylinder in the middle surrounded by concrete and radioactive waste material in the middle, seal it up and ship it off up. I still don't understand what they're putting in those drums.

07:14 - Greg: Waste material. It's not from the SRE though. It was from other operations that were on site. They had some plutonium fuel fabrication, contaminated lab supplies and beakers and equipment. You're familiar with the Pacific dumping? The idea was you had this concrete 55 barrel. You filled it with concrete and you push this center piece into it and your stuff would go in there and you filled the rest of the way up with concrete.

07:47 - Andrew: So you're talking about miscellaneous lab materials? <Greg: Yeah.>

<rolls served, burned herself>

08:10 - Andrew: Maybe we should close this out. Do you have any other questions? <Greg: No.>

08:23 - **FX-** I had military and electronics school. I had one year of college. I've since a Masters in medical physics and certified HP...

<off-topic topics>

10:31 - Andrew: I'm going to close this out. Thanks so much.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERVIEW NOTES

Review for Privacy Act Information before release

Project/Subject: SSFL / HSA

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Interviewee(s): FX-6 Personal (?)

Contact information: FX-6

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 Personal left a Voicemail to me on 11/13/09: Said that years ago did concrete work as a member of local 741 (Cement Masons out of Ventura) that dispatched him to work at SSFL (Cement Masons changed to Local 600). Remembered that the union dispatcher was name FX-6 Personal – dispatcher). Said that her remembers seeing a pit, like a small pond, with pipe draining “really nasty” stuff into it during “Reagan years” (80s)

On 11/17/09 I called FX-6 Personal back and he gave the following additional details: He was assigned to help construct a concrete wall near the testing of Rockets. He does not recall the name of the “Area” (ie whether it was Area I, II, III, or IV) but because he remembers the proximity to rocket testing, it was not likely Area 4. He said this pit, pond or lagoon, was a manmade pond and had thick viscous brown-green color and said pipes came from nearby building straight to this pond. Said he wore a radiation badge and had to leave the badge at the end of the day. Had no other information. When I asked if we could meet to go over aerial photographs he declined saying that he would not remember the location.

End.



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Date / Time: 11/10/09

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Interviewee(s): [Redacted] FX-6 Personal

Contact information: [Redacted]

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

Called [Redacted] FX-6 to follow-up on 11/9/09 email exchange between he and I ([Redacted] FX-6) initiated contact after seeing ad in Newspaper).

[Redacted] FX-6 was involved in the demo of SRE and was hired to cut concrete wall to remove 20" sodium contaminated pipe connecting reactor room to "loading cell" or "load cell" or "Hot cell" (could not remember name). The load cell room was where pellets were loading into rods and while he was there, the pockmarks on the ceiling, floor and walls from chipping and cuts were all over... these were from a previous removal of contaminated (rad) concrete and rebar.

[Redacted] FX-6 praised the health and safety of the work and Rockwell foreman (could not remember name).

[Redacted] FX-6 contacted me because he did not know what was done with the slurry from his cutting though he does remember the foreman saying it was not radioactive.

[Redacted] FX-6 informed me that Penhall (Anaheim office) did the reactor core removal at SRE using the "stich-drill" method of overdrilling (by 8" core bit) the reactor cores down to 30' dep then drilling directly next to it a second hole to facilitate core removal.

He estimated 300 gallons of slurry was produced from 60 holes. Slurry is water that cools the drill bit and gets mixed with the ground concrete and rebar and usually also contains tiny pieces of the metal and diamond drill bit. At that time, the removal practice of slurry removal / contaminant was simply dumping it into pits or on ground. He said this was the usual practice up through the 80's. [Redacted] FX-6 said that now, pits must be lined. He did not know how Rockwell dealt with it, but this is why he called... in case we come across the light grey dried slurry material in our investigation.

Page 2 of 3

FX-6 wore a film badge throughout his work there, but was never told the results... assumed he would have been told if his results were bad. Naval D personal protection was only necessary (with film badge). At the time, FX-6 worked for Penhall, Co., a sub of Nuclear Control Corp (NCC), a contractor to Rockwell. See attached email correspondence.

END

EMAILS:

Re: SRE build 1983-84

FX-6 Personal

Privacy
to: Andrew Taylor

11/09/2009 06:55 PM

Show Details

Andrew , As I recall NCC was a branch of Penhall Co. from 1982 -? They did reactor demo when it involved concrete, two jobs I know they did were the SRE and Turkey Point Florida. Yes please call I would be happy to help.

FX-6 Personal

Privacy

--- On Mon, 11/9/09, Taylor.Andrew@epamail.epa.gov <Taylor.Andrew@epamail.epa.gov> wrote:

From: Taylor.Andrew@epamail.epa.gov <Taylor.Andrew@epamail.epa.gov>

Subject: Re: SRE build 1983-84

To: FX-6 Personal Privacy @yahoo.com>

Date: Monday, November 9, 2009, 3:48 PM

Thank you FX-6. Every little piece of information helps and it's hard to say this early on what information is valuable in and of itself, or what information could lead to other valuable information, so I really appreciate your email. Who is Nuclear Control Group?

If you later recall information, or the names of individuals that you would recommend me talking to, please let me know and remember that all information can stay off the record if you desire. Since you included your phone number, I hope you won't mind if I, or my contractor (HGL), contact you in the future for more details if necessary.

Again, much appreciated.

Andrew

From: [REDACTED]@yahoo.com>
To: Andrew Taylor/R9/USEPA/US@EPA
Date: 11/09/2009 03:24 PM
Subject: SRE build 1983-84

Andrew I worked in the SRE building in the early 80's at the time I was employed by Penhall Co. I recall that they were working for one of their subsidiaries NCC or Nuclear Control Corp.

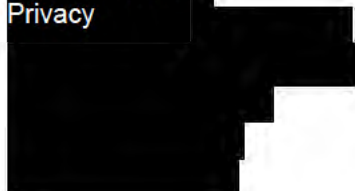
At the time NCC was working for Rockwell.

My job was to cut the concrete wall that separated the reactor area from the loading cells, and cut another wall so a sodium contaminated 20" pipe could be removed, I never saw what they did with the concrete slurry, but I do recall the Foreman for Rockwell said was not radioactive.

The crew from Rockwell seemed to be truly concerned with my safety and we reviewed our safety procedures every morning. The only thing that struck me as odd was every guy on Rockwells crew was a chain smoker.

Sorry I can't help more but the concrete slurry went somewhere.

FX-6 Personal
Privacy





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PHONE INTERVIEW

Interviewee(s): FX-6 Personal, former Rocketdyne employee at SSFL (Areas 1-3).

Contact information: FX-6

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 Personal Privacy called me today to share information from his 23-year career with Rocketdyne (1965 to 1986 at SSFL). FX started his conversation by making clear that he has nothing against Boeing whatsoever and does not want to be involved in the community disputes over SSFL but did want to share information he thought would be useful to EPA.

FX does not have any information about Area IV or radioactive materials but plenty to say about other hazardous materials. The following is an account of the issues LP discussed.

- (1) **Alleged depleted Uranium projectiles:** FX stated that the projectiles found in Area 1 were not uranium. He himself manufactured the projectiles using lead from tire/wheel weights. He could not describe the specific location well enough for me to pinpoint but said that these projectiles have been identified during a cleanup effort there and wanted EPA to know that they were not depleted uranium.
- (2) **Beryllium contamination:** In Area 1, on a hill overlooking "Happy Valley" is or was a "mix building" where beryllium projectiles were manufactured. There was a tank set down in the hill to catch excess beryllium attached to the building by a hose. He and the crew he worked with there cut off that hose and let the Beryllium go to the ground because of a structural issue with the tank.
- (3) **Diaboron / Pentaboron contamination:** Downhill from issue #2 above. "PRE building" where propellant research occurred and "advanced system." Used Diaboron that was kept in a tank that frequently leaked. Tank was kept surrounded in dry ice but leaked. When exposed to air, became pentaboron and ignited (occurred frequently).
- (4) **TCE contamination:** Between the "Area 1 road" and the PRE building was a leaking concrete-lined pond that mixtures with TCE were pumped into. This area was known as a "Fluorine Area" and fluorine dumped in the pond would be burned off during "Toxic Firings" which was only done when wind came from the West. A subsurface tile pipe between the PRE building and the pond would have to be frequently repaired or replaced due to explosions in the pipe from the fluorine.
- (5) **"Fuming Sulfuric Acid" and Fluorine leaks:** No details provided... FX had to end call.



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Interviewee(s): [Redacted] FX-6 Personal

Contact information: [Redacted] FX-6 Personal

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

[Redacted] FX-6 Personal father was a former AI employee who later died of cancer that she believes was caused by work at SSFL and Canoga Park. [Redacted] FX-6 Personal called to offer help but did not have any information in detail other than the fact that her father worked at the "conservation yard" at Canoga facility and was part of a crew that went up to SSFL to retrieve disabled, decommissioned, or older parts of equipment used in Area 4 and bring them to Canoga for cleaning and reassembly. Offered to help if needed in future. She is working with [Redacted] FX-6 Personal to file claims for father.

END



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Interviewee(s): **FX-6 Personal Privacy**

Contact information: **FX-6 Personal**

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 left voicemail for me on 11/9/09 seeking information... not clear if she could help me or not but seemed to imply that I might be able to help her. Her message said that her dad worked at SSFL in the 1960s for Rockwell/Rocketdyne and was involved in a radioactive spill/accident. **FX-6 Personal Privacy** (office).

I left message for her on Nov 10th, 2009 to call back. NOTE TO FILE. **FX-6** never called back.

Andrew



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Interviewee(s): FX-6 Personal

Contact information: FX-6 Personal Privacy

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 Personal called the EPA 1-800 line to assist EPA. Said he had worked for 35 years on the hill in Areas I to IV, willing to help out; serial FX-6 Personal, nephew FX-6 Personal also worked on Hill). The following is a transcript of the audio recorded interview:

00:00 - Andrew: This is the interview with FX-6 Personal and it's December 3rd. Is it okay that we tape record? <FX-6 : I guess.> So I want to tell you a little about what I'm doing. It might help you answer my questions. I'm with the EPA, federal. One of the jobs we're doing up on the Hill is we're going to start taking samples of soil underneath the groundwater to see where radiation contamination is. I'm helping that side of the shop figure out where to take samples by talking to former employees to see if there's information that we don't know already.

00:50 - FX-6 : We buried a lot of that stuff. There at ETEC. I was an inspector up there at the time. We only had the one shift. We didn't have a second shift or third shift. Evidently they felt there that the guys would be better off learning all this stuff on the one shift because there were sometimes when I'd working Saturdays and Sundays and we'd have to talk all kinds of samples. What they ever done with them, I don't know. I can't answer that.

01:31 - Andrew: So you were there from 1974 to 1986? <FX-6 : At ETEC.> Were you working on the Hill before that or after?

01:41 - FX-6 : No. I worked over in where we tested on the space engines. On the other side.

01:57 - Andrew: But were you on the Hill? <FX-6 : Oh yeah, up on the Hill.> Can you tell me, that was before 1974?

02:05 - FX-6 : Oh yeah, I was hired in at '56. I worked in alpha area, bravo area, coco area, delta area and CTL 1, 2, 3, 4, 5. They had three shifts in that area or two shifts rather. They didn't believe in three shifts, so they had the guy working 10 hours a day over in Rocketdyne.

02:45 - Andrew: From 1956 to 1974, that was in Rocketdyne. Was Rocketdyne your employer?

02:57 - FX-6 : Yeah. North American Aviation. Then it became Rockwell and later Rocketdyne. Our office was down in Canoga Park, but I worked up on the Hill all of those years.

03:21 - Andrew: Before we get to 1974 at ETEC, during your years working at alpha/bravo/coco/delta and all those other areas in 1956-1974, did you ever deal with radioactive materials?

03:41 - **FX-6** : I can't answer that because all we were doing up there then was testing rocket engines into space. We had big water buckets, bigger than this house, where the flame will come out and then shoot out this way. I can't really say. Everything was fine up there. I worked different shifts there for a while. I was a mechanic. Then I went into inspection.

04:25 - Andrew: What did you inspect?

04:27 - **FX-6** : Over there at ETEC, checked on everything there and make sure they were running all the tests. I had to do a leak check with a machine up there, checking on any of the nuclear stuff for any type of leakage.

04:57 - Andrew: Including pipes and pumps? **FX-6** : Everything.> Do you know a fellow named **FX-6** ?

05:06 - **FX-6** : I hate talking about him. He lived in Simi. <Andrew: Is that where he is now, I forget?> I don't know, I can't answer that.

05:18 - Andrew: I bring him up because it sounds like he did similar work.

05:21 - **FX-6** : Yeah he did. **FX-6** . I think he became a lead man later on. I can't answer that, I don't know. He lived in Simi.

05:38 - Andrew: I talked to him actually. He told me about all the work that he did in inspecting, so sounds similar. Sounds like you were there before him?

05:52 - **FX-6** : A little bit. Not much.

05:57 - Andrew: So you were a mechanic at the alpha/bravo on Rocketdyne and then at ETEC you became an inspector? **FX-6** Right.> Were you [inspecting] construction equipment, piping – what kind of materials?

06:16 - **FX-6** : Everything they had there for testing radiation, nuclear. One place there were had to go down in the basement, I don't know how many steps, and check for leakage on any of the nuclear stuff down there. All of ETEC up there for any type of leakage all around.

06:51 - Andrew: Did you have to wear any big space suits, the hazmat suits?

06:56 - **FX-6** No we didn't at the time. I had to wear a mask. Of course a helmet all the time or hard hat.

07:05 - Andrew: A respirator? **FX-6** : Yeah.> Did you have a disseminator film badges? They monitor radiation.

07:14 - **FX-6** I can't remember. I don't think so. It was all knew to them. We were just getting into it. '74 to '86 I worked over there.

07:37 - Andrew: Can you tell me about your day to day job as an inspector? Was it different everyday?

07:44 - **FX-6** : It was checking for leakages and pipes. We had a leak detect machine we'd run in there and put in liquid Nitrogen or Hydrogen and check all the piping and fitting for leakage.

08:09 - Andrew: Do you remember were they sodium pipes primarily? **FX-6** Yeah.> Were there other types of pipes too?

08:22 - **FX-6** Helium, Hydrogen, Nitrogen of course. We had to be careful of liquid oxygen because that did the most damage.

08:48 - Andrew: Were there certain buildings that you worked in more than other buildings?

08:52 - **FX-6** : No basically the same. We had to go to this one today and that one tomorrow.

09:00 - Andrew: So you had a maintenance schedule or you were just checking up on problems?

09:05 - **FX-6** : We'd get a call and the supervisor **FX-6** and say "Go up there and you've got to check for leakage in there." We had a leak check machine. We'd have it taken down there and leak check all this up and make sure this stuff wasn't leaking.

09:38 - Andrew: Do you recall any accident or spills, things that would cause contamination to go to ground?

09:50 - **FX-6** Off hand I can't remember that. If it did, we never paid much attention to it if you follow me. Oh we got a slight leak going there. We'll just get a shovel and bury it. You know what I mean? That's about all we did. We didn't know too much about it at the time.

10:13 - Andrew: What kind of materials would be that you mentioned sometimes would be put into the ground? Like waste material? What kind of materials are we talking about – destruction debris?

10:30 - **FX-6** Leakage from the type of testing we were doing. It's been so darn long now I've forgot a lot of it.

10:49 - Andrew: Can you describe a typical situation where something would leak? You were doing maintenance on a pipe checking and there would be stuff coming out and you'd collect it and put it out back?

11:04 - **FX-6** The mechanic would. We made sure to bury it out in the ground or something like that. At that time, they didn't know what to do with it either.

11:20 - Andrew: Are we talking about small volumes? **FX-6** Small stuff.> Like a bucket worth or drum? **FX-6** No, small volumes.> Was that frequent like weekly?

11:39 - **FX-6** : Maybe once a week, maybe once every two weeks or something. They were pretty careful about pipe connections and stuff like that to make sure they weren't leaking.

11:53 - Andrew: And how would the mechanics just dig a hole, put it in and bury it? Like a few feet below?

12:00 - **FX-6** : Yeah about a foot and half, two feet below.

12:10 - Andrew: Was there one specific area he'd go to?

12:16 - **FX-6** : No he took it over to one area out there. Don't ask me where it is or where it was then.

12:25 - Andrew: I'm going to ask you later when I take out the photos. Maybe it will jog your memory.

12:40 - **FX-6** : Nobody could believe my serial number. I hired with North American before the war out in Inglewood. They were looking for workers, so I went to work. I said all right and I got in. They had the draft, but I enlisted in the Navy. My number was **FX-6** and when I'd go through security at the gate they wouldn't believe it. I said that's the number. They had to call down to Inglewood, "This is the man's name, what's his serial number?" They couldn't believe it. Everybody else had five/six numbers, **FX-6**. Well it's **FX-6**.

13:36 - Andrew: That was your company number? **FX-6** : Yeah.> Does that mean you're the **FX-** hire?

13:44 - **FX-6** was my serial number. So then when I hired in with Rocketdyne in '56 I had the same serial number and nobody would believe it. When you went through the gate, you'd have to give the serial number. I told the guards this and that. No it can't be. Call Inglewood, call Canoga Park. Oh okay, you're in. Those days it was a gated community. Guards at the gate. I don't know how it is now. If they still got guards at the gate. <Andrew: They still do.> Oh they still do?

14:40 - Andrew: Did you yourself handle radioactive materials?

14:49 - **FX-6** I might have. I can't recall really. It was so new to us then that we didn't know.

15:03 - Andrew: Did you or your shop that you worked in help with the removal of drums and waste material off the property?

15:14 - **FX-6** : No because I was an inspector and all the drums was taken off by a company of fork lifts moved it someplace.

15:38 - Andrew: Were there other people that you worked with that might also help me?

15:47 - FX-6 : The mechanics. I can't remember where they are or who they are. One guy right now, he lives up in Tohatchapee. My nephew, FX-6 , was working at ETEC. He spent quite a time over them in radiation. FX-6 was over there. FX-6 lives someplace up in Tohatchapee. He was seeing his son, FX-6 who worked there too. My son was over there, but Rocketdyne sent him down to Canoga Park and he worked on Canoga Park. He was a manager down there in college.

17:00 - Andrew: What did he do up on the Hill? Your nephew? <FX-6 Over there at AI, ETEC. Same thing.> Same type of work? <FX-6 No, he was a mechanic.> What years was he there?

17:25 - FX-6 : I couldn't tell you because he's still working there. 40 years he's done with them. He works out of the other side of Palmdale and all that stuff that's up in there. He put in 40 years and he retired and they said no we want you to keep going. So they said you will be a "job shop" and if they want a job up here in Palmdale, he'll go over there. He lives out in Tohatchapee and he goes to various up in the desert.

18:01 - Andrew: He still works for Boeing? <FX-6 Yeah.> If I were to talk to him, I'll probably have to, by law, go through Boeing to talk to him. <FX-6 I can give you his phone number.> Sure okay.

18:23 - FX-6 : His cell phone, sit still. The cell phone is the best way to reach him. The pager is FX-6 . Work is FX-6 . FX-6 Home phone is FX-6 Personal Privacy .

20:16 - Andrew: FX-6 , was he also a mechanic? <FX-6 : Yeah.> And he was a mechanic back when you were there? <FX-6 Yeah. His son was up there, FX-6 > Was FX-6 also there while you were there? (head nod or shake from FX-6) Okay. When you say a mechanic, were they the folks assigned to that particular operation?

20:39 - FX-6 Well that, yeah. They'd take the piping apart, put it all back to together, and we'd all go inspect it for leakage when we did the test.

20:53 - Andrew: They would do the repair and then your crew would do the testing? <FX-6 : Yeah.> Did the mechanics have their own office, were they a group?

21:08 - FX-6 They worked out of the building. Say for instance, some of the buildings I don't remember the numbers of them. They'd work out of that, they'd have all their equipment in there and they'd go out of there. They'd be working at the building where they had to work on the piping doing all the testing. This was in the days before all the computers came out.

21:43 - Andrew: Then they would also go out to the different areas and conduct repairs?

21:51 - FX-6 Yeah. We were able to drive our vehicles up in there. We'd drive in being in inspection to the main office and if I had to go out on the job, I'd take my vehicle out to a certain building.

22:34 - Andrew: Any other names of old-timers that were there for a long time, including people that were not in your shop that was radioactive material? <FX-6 Personal > I talked to FX-6 . Where did I talk to him? I think he lives in FX-6 . He was visiting the Bay Area and FX-6 gave him my number.

23:10 - FX-6 , him and I worked together for quite a while. I'm trying to think of another man, he went out and did field service. Maybe this company was selling something to our company and he'd go over there and inspect it. I did that too. I couldn't leave L.A. I went into Los Angeles and checked on pipes that were being built and cylinders. <Andrew: Before they came on site?> Before they came on site. I think FX-6 did the same thing. FX-6 , too. Who else was there?

24:16 - Andrew: You mentioned your supervisor, FX-6 . When he was your supervisor, was he quite a bit older than you at that point?

24:30 - FX-6 : No, the same. He might have been younger, I don't know. He had an office secretary. I forgot her name.

24:55 - Andrew: Now that you know what I'm looking for. I'm looking for where things were disposed of. Where maybe hazardous chemicals and radioactive materials either in liquid or in solid or in drums or mixed up in concrete and other materials. If it was,

where it was disposed of on the Hill? What advice would you give me? We already talked about "who". Are there any incidents, any particular dumping grounds and areas?

25:40 - **FX-6** : We had an area up there where they dumped a lot of that stuff, but don't ask me where it was.

25:53 - Andrew: Was it near the buildings or kind off the property? **FX-6** : Kind of off the top a little bit.> Was it in a natural depression?

26:05 - **FX-6** : No, it was on the side of the Hill. They had to dig it out and bury this stuff. To tell you the truth, then, we never paid any attention to it. They said okay we have to bury that stuff over there.

26:25 - Andrew: What kind of stuff are we talking about when you say stuff?

26:32 - **FX-6** : Whatever came out of the piping if there was a leak.

26:38 - Andrew: You mentioned there were usually small volumes? Were there ever big things put in that disposal area like drums or dump trucks?

26:54 - **FX-6** : I think pick-up trucks come in there. I never paid much attention to it.

27:09 - Andrew: Yeah there's nothing out of the ordinary. Can I show you a few photographs?

<showing photos>

30:50 - Andrew: At one point they excavated a hole to build a building, filled it with water and abandoned it. This hole became a dumping area. A little circular pit. Just construction debris.

31:05 - **FX-6** : I remember that.

31:20 - Andrew: If you were to try and guess where the mechanics and people would bring the small volumes of waste from the testing, would it be on Area IV or off Area IV?

31:40 - **FX-6** : In Area IV someplace, but I can't say where. I think they were called Maintenance and Maintenance would come down and pick it up. The barrels and stuff.

31:59 - Andrew: What about the little volumes of things? Would they just do it themselves or would they call Maintenance for that?

32:06 - **FX-6** : I think they called maintenance for that. Being in inspection, I had nothing to do with it.

31:15 - Andrew: What was that office called? Office of Maintenance?

32:23 - **FX-6** : ETEC Maintenance, the maintenance for the whole Hill.

32:31 - Andrew: Do you remember any of the fellas names that worked in Maintenance? **FX-6** Off-hand, no.> That helps quite a bit. This is like one big jigsaw puzzle because every little piece helps another piece. I might be able to find some names from Maintenance shop.

32:58 - **FX-6** : I could tell you guys from Rocketdyne side, engineers. **FX-6** (sp?) was one. They were test-hand engineers. We did the firing of the rocket engines. **FX-6** was my boss when I went into inspection. **FX-6 Personal**. I'm trying to think of another guy who worked in the inspections office with **FX-6**. We had a great big granite material and we did a lot of inspection on that for leveling. Little short guy, he was an inspector. He did leak check. Most of his work was inspections of materials coming in. We had this great big granite plate was all leveled out and we had to check it for leveling. <Andrew: You used it as a platform to put stuff on?> It was a regular great big granite. It was all leveled. Shipped that from Italy.

35:08 - Andrew: Can you think of questions I should be asking you or other employees to help me with my investigation?

35:28 - FX-6 : I knew we came in the main road.

35:32 - Andrew: Here's some building numbers. <FX-6 : Building #59. That's an awful familiar number.> They had a reactor in there. SCTL. SCTL. Does that ring a bell?

35:56 - FX-6 : I worked at all of them buildings. We had to do a leak check down there and go over there. When you quit working with them after all of them years you forget.

36:30 - Andrew: Well you have my phone number if they pop into your head.

36:39 - FX-6 : Those buildings were familiar. I was in both of them quite a bit. SCTL. SCTL. Building #59. Being an inspector, they had all the mechanics in there doing all the work and we'd get a call to have a leak check or putting this and that together. We had paperwork to buy it all off. I don't know where that paper work ever went. It went someplace.

37:17 - Andrew: Was there paperwork or paper trail for the waste material?

37:21 - FX-6 : Papework of what you've done. About this big in folders. They'd have it all down – inspected this, inspected that. Then we'd have to buy it off.

37:45 - Andrew: Well I think that's it. Is there anything else?

37:52 - FX-6 : No I can't think of anything. I'm trying to think of some more guys I worked with. I know a couple of them are gone. Most of the people lived out in Sinu Valley. We used to drive 14 miles up to the Hill. Enjoyed every minute of it.

38:44 - Andrew: Well here's my card. I'm sorry it's a little beat up. It's been stuffed in my wallet.

<chit-chat>

39:12 - Andrew: I'm going to be continuing to talk to former employees.

39:18 - FX-6 : I'm trying to think of a couple of more names I worked with. Some of the mechanics. There was a FX-6 ? He's gone now, he's passed away.

39:35 - Andrew: FX-6 Personal and his son. They might be able to remember some of the mechanics. Is his son still working for Boeing? FX-6 I can't answer that. FX-6 retired.> Where did you say he might live?

39:58 - FX-6 Personal . That's where my nephew lives. A 2 hour drive. Up 4,000 feet.

40:23 - Andrew: I might call them up.

40:27 - FX-6 : You've got FX-6 number, my nephew. He put in 40 years. He did a lot of work over there at ETEC. He's still working for them job shopping. They don't want him to retire.

<saying thanks>

41:19 - Andrew: This concludes the interview with FX-6 .



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Interviewee(s): FX-6 Personal

Contact information: FX-6 Personal

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

No follow-up required... no specific information relevant to EPA SSFL investigation.

This is a follow-up on 1-800 call-in from FX-6 Personal.

Informed me that her husband (deceased) worked at SSFL between 1962 and 1967 but only visited Area 4 a few times for several months at a time... he primarily was involved with Shuttle and Rocket Engine projects in the other Areas of SSFL. She said she thought that "radioactive stuff" was put in Lindero Canyon and the "Bradley Dump" in Van Nueys but could not offer any other details about this. No information about Area IV work or radiation issues at SSFL.

End.



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Interviewee(s): FX-6 (Not FE, grew up in area, see email)

Contact information: FX-6 @mac.com

Interviewer(s): Andrew Taylor, Case Developer, USEPA Reg. IX

FX-6 and I discussed the information he provided by email below. We identified the approximate location of a cave with pooled water that he said may have been polluted. Said is was along a popular hik up to the south east corner of Bell Canyon. We identified the approximate location by both reviewing "google earth" while on the phone. The coordinates are:

34° 13' 16.63"N by 118°, 42' 02.75"W – area discussed in attached email

Said the locals called "Stoner den." It was a big tunnel / cave along the north side with two exits and parts filled with water. Said it may be near 34° 15' 27.80 N and 118° 39' 36.45"W

Email Correspondance:

To: FX-6 Personal Privacy @mac.com> 11/12/2009 11:16 AM

Hey FX-6

Thanks for the information. Every little piece of information is valuable to us. Can you remind me which side of the Santa Susana Field Lab area Bell Canyon bumps up against and do you know the name of the stream and whether it was one that flows and dries depending on the season?

I forwarded your information to a woman named Laura Rainey, a really nice woman who works for the DTSC and is investigating other contamination issues related to Rocketdyne and the entire facility up there (contamination other than radiological). She may contact you independently.

Thanks again for helping out.

-Andrew

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From: FX-6 Personal Privacy [REDACTED]@mac.com>
To: Andrew Taylor
Date: 11/12/2009 08:49 AM
Subject: Rocketdyne Field Lab-Simi Valley.Chatsworth

Hi Andrew,

For what it's worth, after reading the article in my local paper, EPA seeks info.

I used to live in Bell Canyon, which shared the property line with Rocketdyne, in 1981-1984. I was much younger then, actually a teenager.

We used to go hiking all over the area, one in particular. This hiking area was near a stream, we followed this stream up the canyon, it topped out in the property of Rocketdyne. I remember seeing the water change, in a area where the water pooled, was very brackish, brown, with a film on it. There were many blue barrels laying around. I just remember the stream being very polluted.

I remember the way to get there to this day and have always wondered why the stream was polluted. Here we are today.

For what it's worth...

Regards,

FX-6
Personal [REDACTED]